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# CALIFORNIA STATE BOARD OF HEALTH MONTHLY BULLETIN



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Sea gulls are not only expert aviators, but they are also most efficient scavengers. Their favorite pastime is following in the wake of San Francisco Bay ferry boats, but their real worth lies in devouring garbage and other wastes, both on sea and land. As scavengers, ten of them are equal to a pig.

**SEA GULLS AS SCAVENGERS  
SANITATION IN MINES**



**MARCH, 1918**



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# CALIFORNIA STATE BOARD OF HEALTH

## MONTHLY BULLETIN

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MARCH, 1918

No. 9

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# MONTHLY BULLETIN

## CALIFORNIA STATE BOARD OF HEALTH

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Devoted to the Prevention of Sickness and Death

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¶ Entered as second-class matter, August 15, 1905, at the post office at Sacramento, California, under the Act of Congress of July 16, 1894.

Sent free, on request, to any citizen of California.

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WILFRED H. KELLOGG, M.D., Secretary and Executive Officer . Editor  
GUY P. JONES, Morbidity Statistician . . . Associate Editor

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**Dr. Kellogg Is Made Secretary of Board.** At the February meeting of the California State Board of Health, Dr. Wilfred H. Kellogg, Director of the Bureau of Communicable Diseases, was made secretary of the board to succeed Dr. Wilbur A. Sawyer, who has received a commission in the Medical Reserve Corps of the Army. Dr. Kellogg has been actively identified with public health work in California for many years and is particularly well qualified for conducting the work of the board. He has had experience not only in the control of the more common communicable diseases, but, while in the United States Public Health Service, he was actively engaged in the control of tropical and Oriental diseases, uncommon in California, but which, because of our geographical position, present a constant menace. Dr. Kellogg's familiarity with California and with the health problems of the state, together with his recognized ability as a sanitarian, constitute a great asset in maintaining our public health.

★ ★ ★

**Increased Rice Acreage, Greater Malaria Problem.** Eighty-four thousand acres of rice were harvested in California during 1917 and it would appear now that there will be an increase of 40 per cent in the acreage devoted to rice culture this year. Since 95 per cent of California rice is raised in the Sacramento Valley, this means that our malaria and mosquito problem will become of greater importance than ever before. The most favorable conditions for the production of rice and for the breeding of malaria-bearing mosquitoes are identical and as yet no effective method of mosquito control, without injury to the growing rice, has been developed. The extermination of mosquitoes in the average community can be accomplished easily. The problem in the rice fields will, no doubt, find a solution. Considerable experimental work is being undertaken which may soon result in a new method of meeting this aggravating problem.



**Hookworm Control  
In California Mines.**

California is the only state in the Union which is carrying on an organized campaign against hookworm disease among miners. Since the disease is introduced and spread in mines chiefly through soil pollution, sanitary measures are of the greatest importance in the work of prevention. In this number of the Bulletin is an article, "Sanitation in Mines for the Prevention and Eradication of Hookworm," by Professor Charles A. Kofoed, Consulting Biologist of the California State Board of Health, and Professor W. W. Cort, Associate Biologist. This article is of special interest to miners and mining concerns, as it gives practical information relative to methods for making mines sanitary.

★ ★ ★

**Full-Time Health  
Officer Gets Results.**

Palo Alto, with a population of 6,000, has a full-time health officer. The Palo Alto death rate is about one-half that for the state. Since 1911, in this city, there have been no deaths of infants, under two years of age, from diarrhea and enteritis. During the same period, the deaths of no less than 5,528 infants under two years of age, in California, were due to this cause. The Health Department of Palo Alto cost \$3,310 last year—\$0.56 per capita. At the beginning of 1918 there were three known cases of tuberculosis in Palo Alto. There was not a single case of diphtheria there during 1917. These are a few of the significant facts, as published in the annual report of the Palo Alto Health Department for 1917, Louis Olsen, Health Officer. Does it pay to have a full-time health officer?

★ ★ ★

**Better Reporting of  
Communicable Diseases.**

There were nearly twice as many cases of communicable diseases reported to the California State Board of Health during 1917, as were reported during 1916. The total number of such cases reported during 1916 was 36,260 and the total for 1917 reached 64,588. There is a better spirit of cooperation among physicians and health officers in the reporting of these diseases. Petty jealousies are not so common as they once were. Nurses, clergymen and Christian Science practitioners frequently report cases now, in accordance with the provisions of the law. The collection of morbidity statistics is of prime importance and the cooperation of laymen and physicians in securing the registration of all cases will go far toward securing better results in the control of communicable diseases.

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**Measles Prevalent  
Throughout State.**

Measles and German measles were never more prevalent in California than they are at the present time. Last year 23,500 cases of measles and German measles were reported to the California State Board of Health, and during January and February of this year no less than 9,000 cases of these diseases have been reported. Fortunately, most of them have been very mild. The mere fact that they are of a mild type, however, makes it important that the board's regulations for their control be strictly followed. Very often, unrecognized smallpox makes its insidious appearance in the midst of an



outbreak of these "rash" diseases. Diminishing the possibility of contact through the early isolation of the patient is the most effective method for the control of measles. It should be employed consistently in every community of the state.

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**Health of Hog Versus  
Health of Man.**

In one county of California the health officer receives a salary of \$25 per month, while the county veterinarian receives \$125 per month. The board of supervisors even went so far as to dispense with the health officer's services altogether, but finally reconsidered, after attention had been called to the law. None can deny that the health of domestic animals is of great importance, but is it of so much greater importance than the health of human beings? Public health work is based upon definite, established procedures, and the community that neglects to make provision for protecting the health of its members will in the end pay dearly for such neglect. In most places, fortunately, men are still considered a little superior to animals.

★ ★ ★

**To Save 100,000  
Children's Lives!**

The Federal Children's Bureau has announced a campaign for saving the lives of one hundred thousand of the nation's children this year, of which California's quota is 1,822 lives. This is a high mark for California, because our infant mortality rate is much lower than that for most other states. If the lives of 1,822 California children are to be saved this year, it means that every possible effort for promoting child welfare must be exerted. Fortunately, the excellent California milk law is of tremendous importance in saving the lives of children. This law will be our most valuable ally in helping to save our quota of lives in this country-wide campaign.

★ ★ ★

**Need for School of  
Public Health Nursing.**

There is an enormous demand for public health nurses in California and throughout the United States—a demand that can not be filled at the present time. Unfortunately, there is in California no school for public health nursing. There should be such an institution within the state, making it unnecessary for nurses to journey to other states for their public health courses. The University of California is giving the matter much assistance through its summer session courses in public health nursing, but there is great need for a full-year course in which this important branch of health work may be given the attention which is due to it.

★ ★ ★

**Lye Unnecessary  
With Hot Water.**

Frequent newspaper references to the law requiring sterilization of drinking glasses display some confusion in interpretation of the regulations of the board. The most common error is in the statement that boiling water containing 5 per cent caustic soda is required. The facts are that the soda solution is an approved substitute for sterilization by steam and boiling water, but it is not required that the solution be used hot. On the contrary, it is intended that the lye solution shall be used when arrangements for heating are not available.



**Venereal Disease  
Regulations Hold.**

Several women, in San Jose, suffering from venereal diseases, were recently quarantined under the regulations of the California State Board of Health. An attorney for one of these women attempted to secure her release on habeas corpus proceedings. The matter came before Judge J. R. Welch of the Superior Court, who dismissed the case and remanded the woman to the custody of the health officer. Assistant District Attorney Coolidge conducted the case for the state. Similar actions in San Diego and Los Angeles have brought the same result.

★ ★ ★

**Minnesota Organizes a  
Venereal Disease Bureau.**

An annual appropriation of \$35,000 has been made from war emergency funds for the support of a bureau of venereal diseases under the Minnesota State Board of Health. Dr. H. G. Irvine, Director of the Bureau of Venereal Diseases of the California State Board of Health, has been in Minneapolis on leave during January to assist in the organization of the new work on "the California plan."

★ ★ ★

**Board's Service Flag  
Has Six Stars.**

Prof. W. B. Herms, Consulting Parasitologist of the Board, Prof. Chas. A. Kofoid, Consulting Biologist, and Dr. J. R. Snyder, Bacteriologist in charge of the Northern Branch Laboratory at Sacramento, have just been granted leaves of absence for the duration of the war, all three having entered military service. Dr. W. A. Sawyer, former secretary, Dr. James G. Cumming, former director of the Bureau of Communicable Diseases, and Mr. Joseph Doman, assistant engineer in the Bureau of Sanitary Engineering, have preceded them in entering the service. During the absence of Prof. Herms, Mr. Stanley B. Freeborn will act as Consulting Parasitologist, and Prof. W. W. Cort will take over Prof. Kofoid's duties as Consulting Biologist during the latter's absence.

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**Keeping Well  
a Civic Duty.**

Keeping the territory surrounding army camps free from communicable diseases is one of the great civic duties of the war. While the burden of this responsibility falls upon physicians, the average citizen can be of great assistance. A case of measles, in an extra-cantonment zone, without isolation and supervision, might cause great inconvenience, suffering and delay in preparing a large number of our soldiers for their important mission. We must all do our share by keeping well, but those who come into contact with our men in uniform have an even greater responsibility than the rest of us. Sick soldiers don't help to win the war.



### SEA GULLS AS SCAVENGERS.

As a sea scavenger, the California gull is well known, but few people realize that this bird is an accomplished inland scavenger as well. Not only do gulls clean up refuse, garbage, dead fish and offal on land and water, but they also render important service to agriculturists by destroying insect and rodent pests. In 1907-08 they deserted their haunts on the Great Salt Lake to rid the Nevada alfalfa fields of field mice which threatened to destroy the crops. They lived in the alfalfa fields and in the adjoining fields until they had completed the work. Many years ago they rendered a like service to the state of Utah, through the destruction of grasshoppers which were laying waste the Utah grain fields. In remembrance of this service the people of Utah have erected a monument to the sea gulls, at a cost of \$40,000, in one of the parks of Salt Lake City.

Several years ago, when the Oakland city garbage was dumped in the ocean outside the heads, large quantities of this waste were washed ashore. Were it not for the gulls this would have caused a great nuisance along the beaches, but these efficient birds kept the beaches clean.

#### Resourceful Birds.

When the large suction dredgers began operations on the east bay shore near Oakland, in the reclamation of hundreds of acres of tide lands, large quantities of mussels and clams were brought up. The dredgers had hardly begun their work before sea gulls in large numbers appeared. How these birds learned of the new food supply that was being sucked up from the bottom of the bay, none can tell. They swarmed about the outlet pipe by hundreds, scrambling for the clams and mussels that were poured out with the mud, sand and water. Since the beaks of sea gulls are not designed for crushing purposes, they were unable to break the hard clam shells. The birds are very resourceful, however, and they were observed flying to a height of thirty or forty feet, dropping the clams on the rocks until the shells were broken. One bird was seen to thus drop a clam fifteen times before breaking the shell.

#### Exist in Large Numbers.

At the last Christmas bird census under the auspices of the National Audobon Society, local observers in San Francisco between the hours of 8.30 a.m. and 6.00 p.m. noted 15,000 gulls from Golden Gate Park to Lake Merced, a distance of less than three miles. This gives an indication of the large numbers of these scavengers on our coasts, and since ten of them are equal to a pig, according to Wm. L. Finley, the Pacific Coast ornithologist, it is obvious that our beaches, waterfronts and bay shores would be in filthy condition were it not for the gulls.

There is plenty of waste material for these birds, without resorting to the philanthropic work of feeding them from the ferry boats. Some people, in these days of food conservation, make a practice of filling their pockets with bread, which they throw to the gulls. It is enjoyable to watch these perfect aviators swoop down upon a choice morsel of bread, but it is not in accordance with the food-saving requirements of today.

There has been some discussion relative to the gathering of sea birds' eggs for the market, because of the high price of hen's eggs. While the eggs of sea birds are said to be palatable, to gather them for commercial purposes would undoubtedly result in the extermination of gulls.



## HOOKWORM A COMMUNICABLE AND COMPENSABLE DISEASE.

By PROF. CHARLES A. KOFOID, Consulting Biologist, California State Board of Health, and PROF. W. W. CORT, Associate Biologist.

In an effort to prevent hookworm from being introduced into the mines of California which are still uninfected, and to complete its eradication in those mines in which it has gained a foothold, five agencies are working in cooperation, viz, the California Metal Producers Association, the State Industrial Accident Commission, the State Compensation Insurance Fund, the Federal Bureau of Mines and the California State Board of Health.

Hookworm disease belts the earth in a zone about 66 degrees wide, extending from parallel 36 north to parallel 30 south. Of the countries lying within this belt from which the Rockefeller Sanitary Commission has received reports, 54 are infected and the actual infected areas are undoubtedly much greater. In some regions the percentage of infection is so large that the effect on the health of the general population is very serious. The prevalence of hookworm disease in the southern United States and its serious consequences to the health of the population has been given great publicity by the work of Stiles and the Rockefeller Sanitary Commission. The campaign for the eradication of hookworm in this region is one of the greatest projects in public health the world has ever seen. Recent examinations among southern troops have shown that this disease is a big factor in lowering the standards of health of the men eligible for service from infected regions. The Medical Corps of the army is taking steps for examination of troops for hookworm and the treatment of the disease when found. Hookworm is of importance to the health of California both because of its prevalence in certain mines of the state and on account of the danger of its introduction from the Orient. Scattered cases have been reported from Orientals in California and it may be much more prevalent than is recognized. A large part of southern California falls directly within the hookworm belt and the uniformly high temperatures prevalent in the coast and valley regions farther north are favorable to its development. Large areas of the state are protected from the spread of this disease by the dryness of the climate and others, as the larger cities, by the conditions of life of the populations. However, the constant spread of irrigation in the agriculture of the state and utilization of oriental labor produces conditions, which would seem to be ideal for the spread of hookworm. Whether it is becoming established to any extent in such regions is not known and offers a very important field for investigations. Physicians should constantly be on the lookout for hookworm, and should realize the importance of making faecal examinations when dealing with orientals. The fact that conditions for development and spread of hookworm are favorable in such large regions of the state makes it very important to search out foci of infection of the disease and makes the campaign for its eradication in the mines of significance to the whole state.

Miners' anemia or hookworm disease is both a communicable and compensable disease. By the rigid enforcement of proper sanitary conditions it may be prevented, and by inspection and certification of all men entering the mines and the prompt cure of those found to be



infected, it may be completely eradicated from mines in which it is found. Mine soils infected by careless sanitation may be rid of hookworm by treatment with salt. It is the purpose of this bulletin to make available information pertaining to sanitary measures adapted to California mines for the prevention and eradication of hookworm.

#### Life History of Hookworm.

The hookworm is the cause of a tropical or semitropical disease, which, however, is found beyond these bounds in mining regions where the uniform conditions of temperature and humidity in certain types of mines are favorable to the development of the hookworm larvæ. The hookworm larvæ develop best at a temperature of about 80° F. to 86° F. Temperatures below 60° F. and above 90° F. are injurious to them. They require a moist medium and are easily killed by drying.

The adult hookworms live in the small intestine of man attached to its wall. They have been known to live from eight to ten years. The female produces continually large numbers of eggs which are constantly discharged into the bowel and carried out with the fæces. If a stool containing hookworm eggs is deposited in a moist place where the temperature is from 60° F. to 90° F., the eggs hatch in two or three days. After hatching the young hookworms grow for ten days or more until they reach a length of about one-fortieth of an inch, being practically invisible to the naked eye. They are needle shaped and enclosed in a sheath. At this stage they are ready to infect man and may live for a year or longer in moist soil without further development. These young worms can enter man either by way of the mouth or by penetration of the skin. In either case they make their way to the small intestine and develop to maturity in five to seven weeks. Any underground worker in a mine in which the soil is contaminated with stools of men infected with hookworm is in danger of contracting this disease, either by taking the larvæ into his mouth with food or water or by having the dirt containing them come into contact with his skin.

#### Danger to Miners.

The possibility of the introduction of hookworm infection into mines and its spread among miners will be appreciated from the following facts:

1. Hookworm disease is present in many of the countries from which miners come to the United States.
2. In many mines proper latrines or closets are not installed underground and often even where they are present, the mine may still be polluted by careless individuals.
3. Many miners are constantly shifting from mine to mine throughout the mining regions of the West.
4. The uniform conditions of high temperature and humidity in many mines are favorable to the development of the hookworm larvæ.
5. Eggs and larvæ may be spread by running water in the mines.
6. The darkness of the mine tends to increase the danger of contact with sources of infection in polluted mines.
7. The underground miner's work brings him in frequent contact with the soil of the mine.



Hookworm disease has long been known in the mines of Wales, Germany, Netherlands, Belgium, France and Spain, and in the United States has been reported from mines in Nevada, North Carolina, Tennessee, Kentucky, West Virginia and California. Since no complete survey of the mining regions of the United States has been made, it is very probable that hookworm is also present in other states besides those mentioned. Effective campaigns against hookworm disease in mining regions have been carried on in a number of European countries. Germany reduced the infection in 30,000 miners in ten years from more than 30 per cent to less than 1 per cent. California is the only state in the United States which is carrying on an organized campaign against hookworm disease among miners.

#### Prevention by Sanitation.

Since hookworm is introduced and spread in mines by soil pollution with the faeces of infected individuals, it is evident that sanitary measures which will prevent such soil pollution will be effective in preventing the introduction and spread of the hookworm disease among the miners. Section 22a, page 37 of the Mine Safety Rules issued by the Industrial Accident Commission of the State of California, which has to do with underground toilets in mines, reads as follows:

"It shall be the duty of the operator of every mine, for the purpose of improving the sanitation thereof and preserving the health of those employed therein, to provide an ample number of dry or water-closets upon all main working levels for the use of all men employed in the mine. Ready means of access to each closet shall be provided by the operator. No such closet shall be constructed without adequate provision for the effectual cleansing and removing of the contents thereof, which shall be removed and disposed of often enough to prevent its becoming offensive. It shall be the duty of the mine foreman to cause each closet to be supplied with some disinfectant or deodorizer to be sprinkled upon the contents thereof. It shall be the duty of all men employed within any mine where such closets are provided to use such closets exclusively when in the mine, and the neglect or failure of any man employed in a mine to use such closets when provided shall constitute a violation of these rules; *provided, however*, that this section shall not apply to any mine where the operator or superintendent prefers to permit the men to go to the surface, and requires the men to do so."

#### Difficulties Encountered.

Certain practical difficulties have been encountered by the mine operators in carrying out the provisions of this rule. Each mine operator or superintendent has the problem of finding a type of underground toilet suited to the conditions in his particular mine. After suitable toilets are once installed underground, there are the additional problems of keeping them in proper condition for use and of securing the cooperation of the men in the use of the toilets provided. Disinfection of any stools which are deposited outside the toilets is also an essential feature of mine sanitation.



Sanitary surface toilets in convenient places near the mine entrance are important in helping to solve the problems related to underground toilets. If surface toilets are kept in good condition and are conveniently located there will be a tendency for the miners to use them on their way into the mine and the amount of defecation necessary underground will be reduced. White, on page 11 of Technical Paper No. 132 of the United States Bureau of Mines, figures an inexpensive and sani-

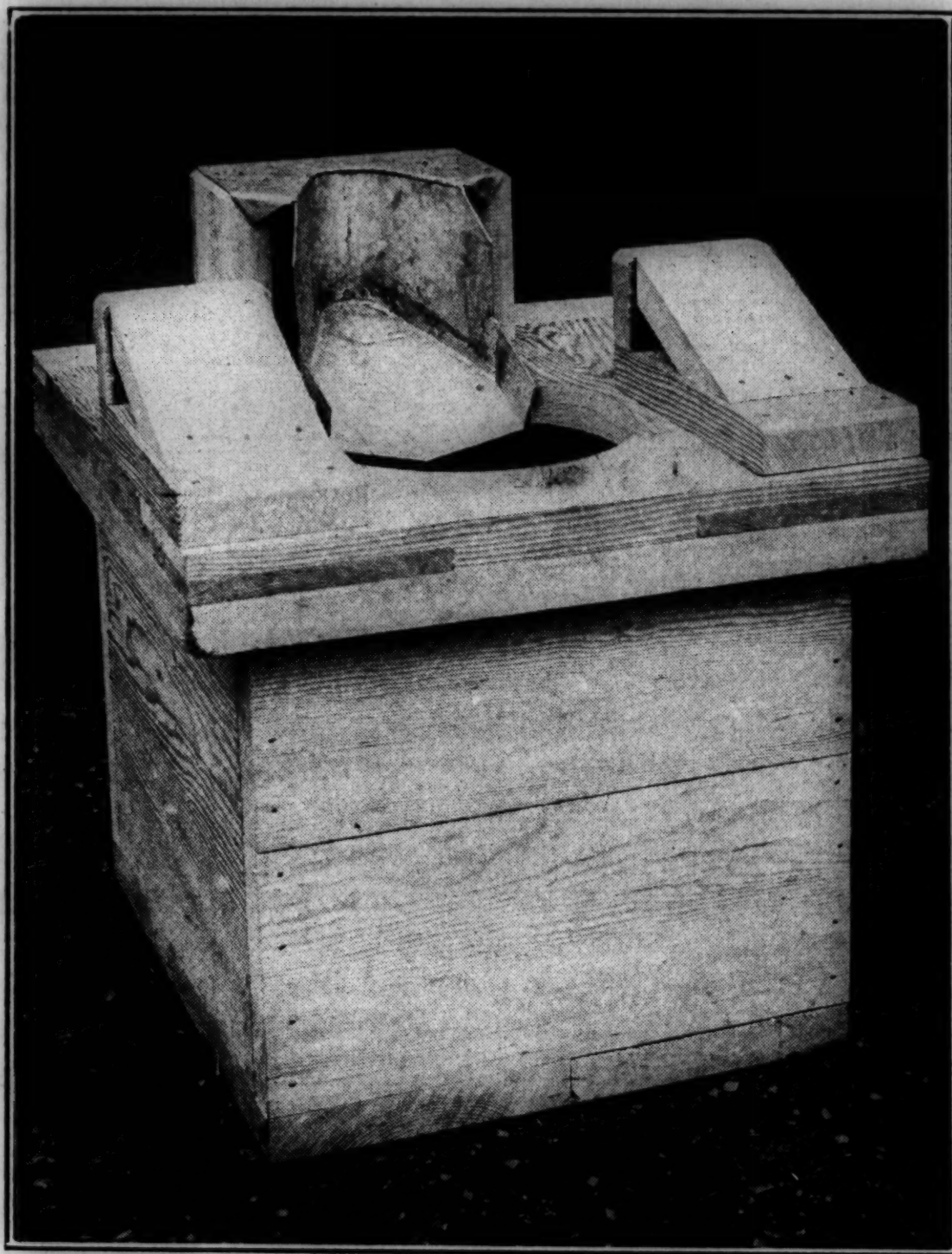


FIG. 1. Front view of seatless toilet in position for use.

tary surface flush toilet. In some mines an arrangement is made for bringing the men to the surface for the use of toilets. This will solve the problem wherever rules against defecation underground can always be rigidly enforced.

The experience of the Treadwell mine of Alaska with underground toilets is related in a letter from E. P. Kennedy, who was formerly connected with this mine. An extract from his letter follows:

“At one time the toilets in the Treadwell mines were located in unused crosscuts or drifts in out of the way places and at best very poorly lighted or in darkness. They consisted of a removable can over which was built a frame, forming a seatless toilet. These cans were taken to the surface, cleaned and replaced. Due to location, lack of ventilation, darkness, general arrangement (or



lack of it) these toilets were very unsatisfactory and constituted places more to be avoided than used. During 1912 I had made neatly constructed stalls consisting of two sides and a back without top, 6 feet high,  $3\frac{1}{2}$  feet wide and 4 feet deep. These were painted white and one or two were set up at the shaft stations depending on the number of men that used the particular station. Within these stalls a frame was built to which was fastened a seat of a patent toilet. Below this seat was placed a can which was taken out each shift, closed with a tight fitting cover and taken to the surface and cleaned. When the soiled can was removed from beneath the seat it was immediately replaced by a clean can. A

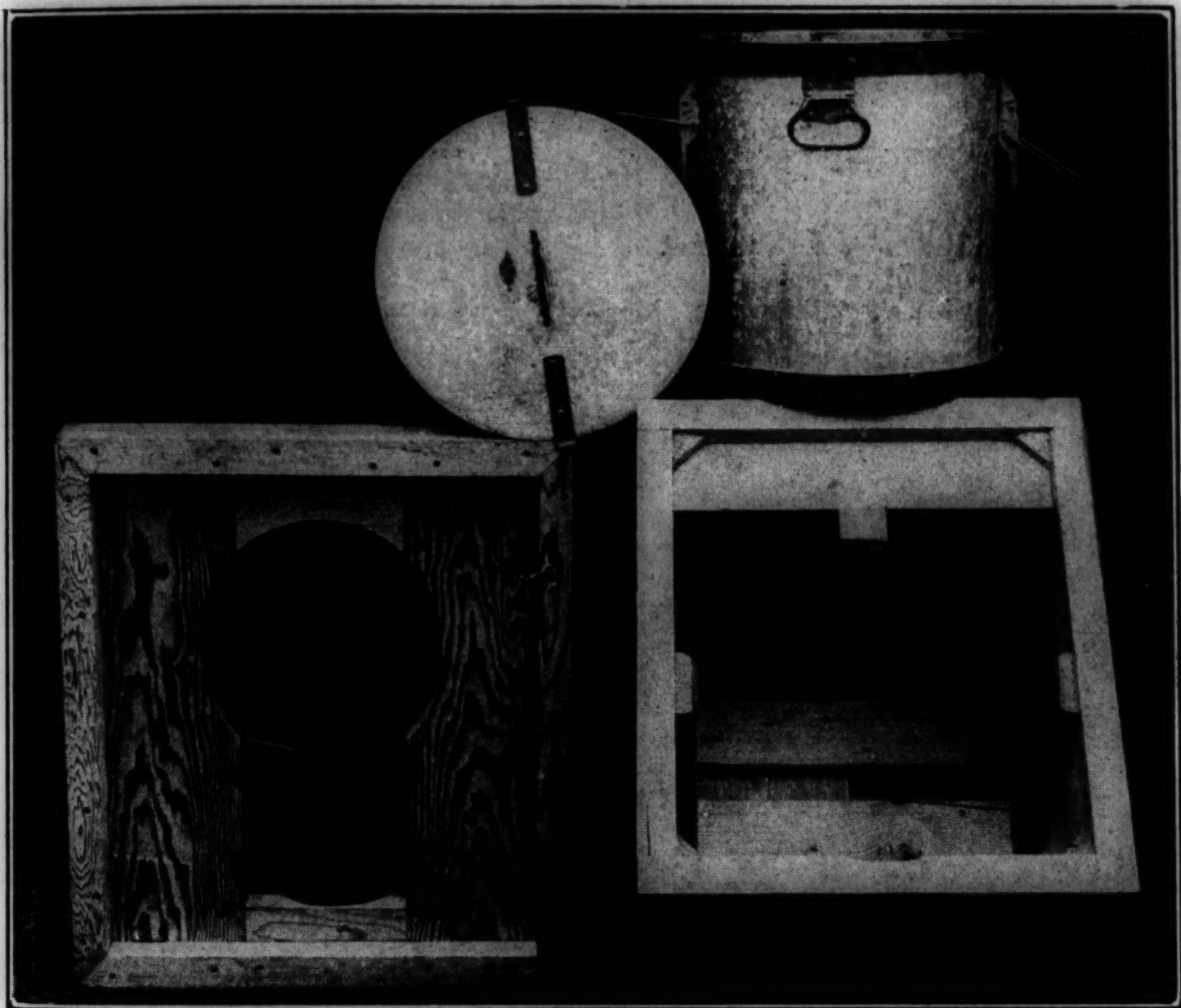


FIG. 2. Seatless toilet with top and can removed.

patent toilet paper container was fastened to the side of the stall, and a small shelf made to hold a can of chloride of lime. The shaft stations were brilliantly lighted and the stalls in plain view of the cages. The height of the sides was such that a man could not stand on the seat without his head showing above the sides. The man who changed the cans saw to it that there was paper and chloride of lime, and that the seats and floors were clean. Location, to provide ventilation, light, and ease of inspection is to my mind the most important consideration as tending toward cleanliness. These toilets were in use about two years before I left Treadwell in 1914 and proved entirely satisfactory while I was there."



### Types of Underground Toilets.

A privy car which can be used in certain types of mines is described and figured by White on pages 12 to 16 of the paper mentioned above. This toilet has been introduced into some of the metal mines of Montana with satisfactory results. Such a toilet arrangement is not applicable to the large number of mines in California which operate with a vertical or slanting shaft and skips.

Another type of underground toilet is described by Cumming and White on pages 12 to 15 of Bulletin No. 139 of the United States Bureau of Mines. It consists of a privy can with a detachable seat. This toilet is simple and not expensive and is used in certain California mines. It has the objection that the seat is

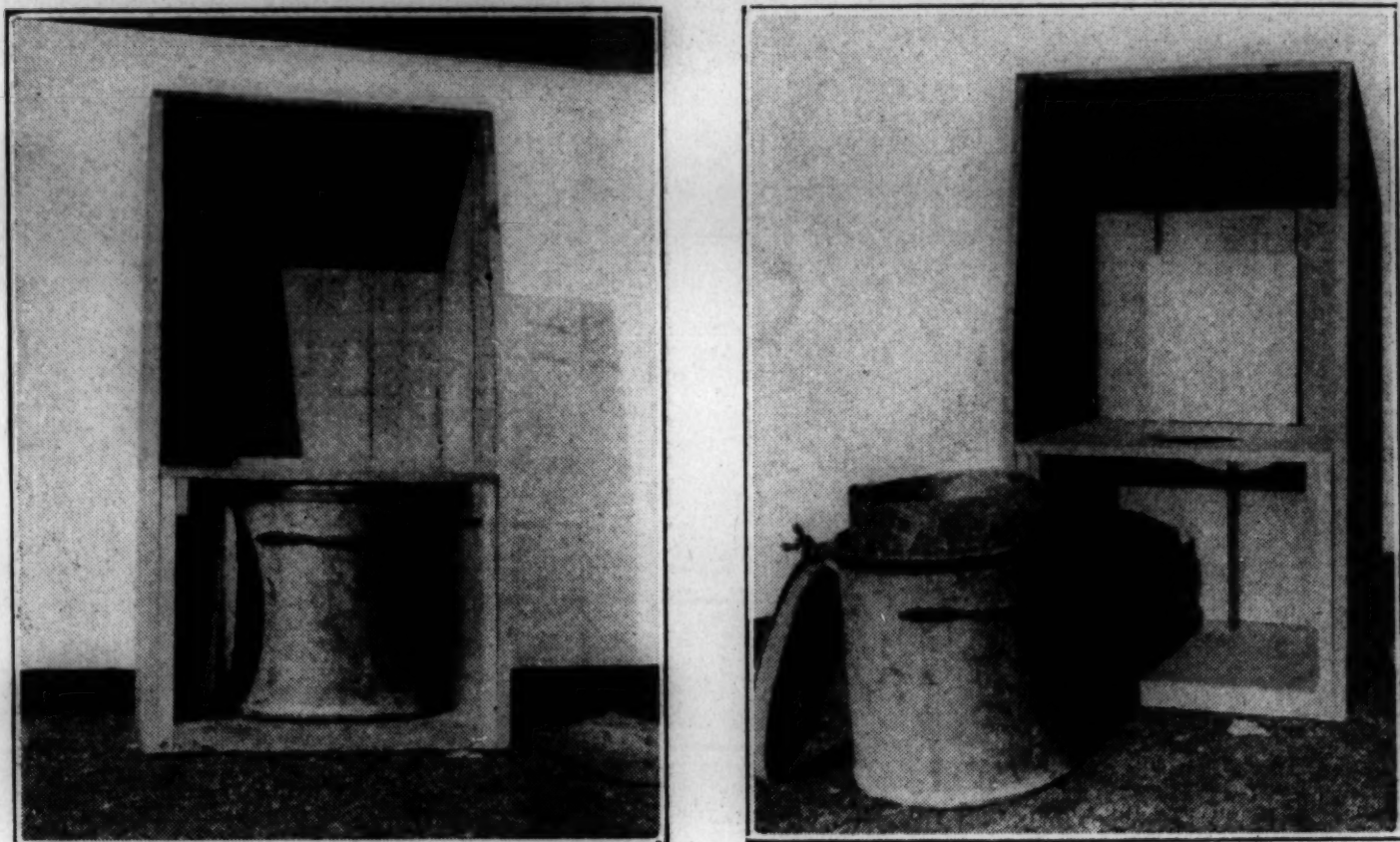


FIG. 3. Two views of the toilet devised by G. F. Williamson.

rather easily fouled. A dirty seat and the fear of infection with lice or venereal disease often induce miners to stand on the seat, which makes matters still worse.

A seatless toilet devised by the Biological Division, and the Bureau of Sanitary Engineering of the California State Board of Health, is shown in Plate I and Figures 1 and 2. This toilet is not expensive and does away with the objectionable features connected with a seat. It should either be sunk in the ground or steps placed against it. The can is easily removed for cleaning and the danger of fouling is not great.

An ingenious and practicable toilet devised by G. F. Williamson of Eagle Shawmut Mine is shown in Plate II and Figure 3. This toilet is inclosed in a covered frame, which is so low that it is impossible for the user to stand on the seat. A paraffined bag with a layer of sawdust in the bottom is placed in the can. This meets the problem of cleaning the can, for the paraffined bags can be removed without soiling the cans. Blueprints and photographs of the seatless toilet and Williamson's toilet may be obtained on application from the Biological Division of the State Board of Health, Berkeley, Cal.



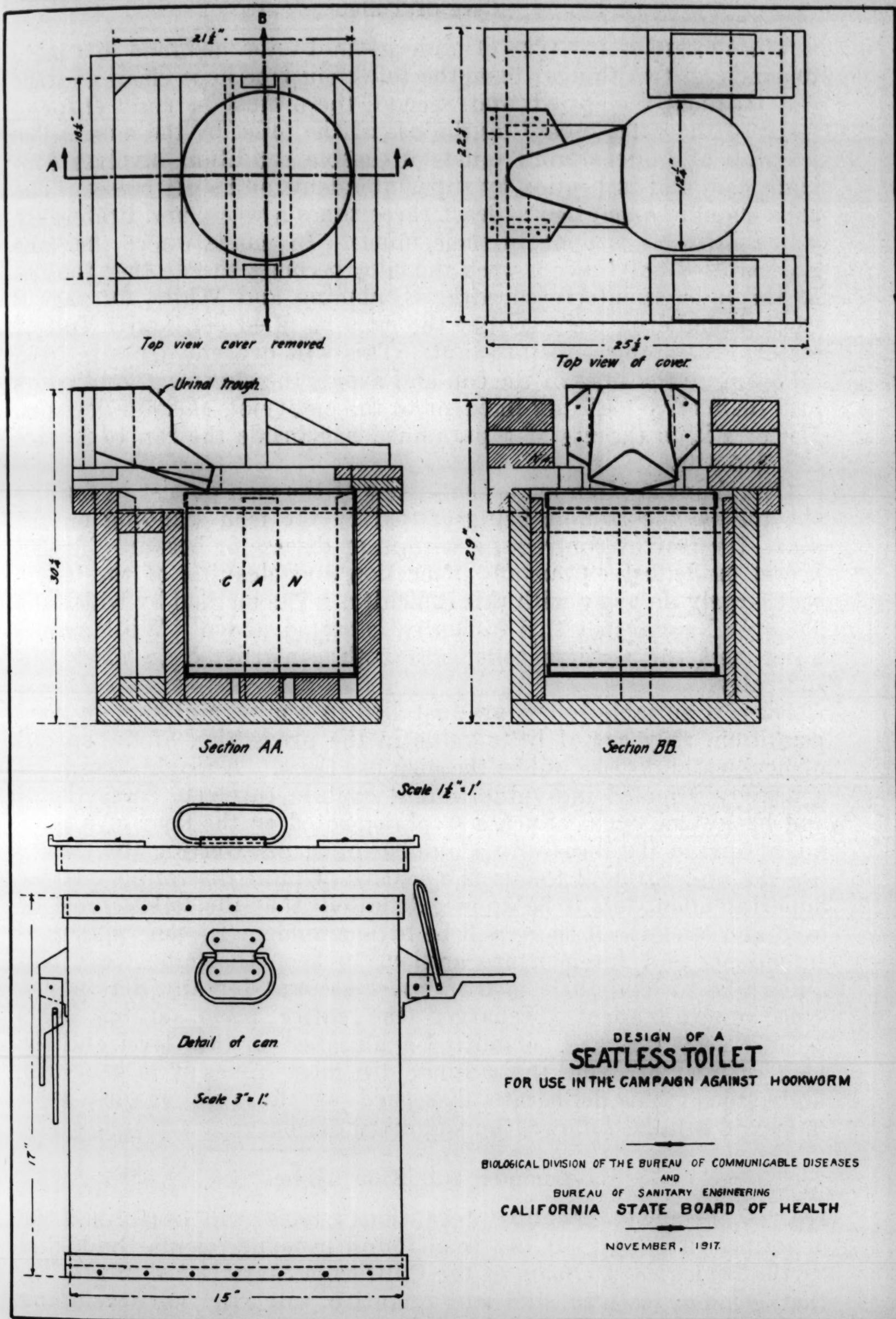


PLATE I. Drawings of the seatless toilet for use in the campaign against hookworm in the mines of California.



### Care of Toilets.

The success of any type of underground toilet installed in a mine depends on two things; first, the toilet must be kept clean and the can frequently emptied, and, second, there must be rigid enforcement of the rules regarding the use of the toilet by the men. The keeping of underground toilets in usable condition involves constant care and inspection by superintendents and shift bosses. The cans should be emptied at least three times a week, and preferably every shift, as is done in some mines. In mines where the cans are emptied only once a week the odor becomes so vile that the use of the toilet is interfered with. Cumming and White, on page 2 of their bulletin, suggest that the cans be filled one-fourth full of water, containing a disinfectant. This will prevent deposits from adhering to the sides of the can and avoids the churning, foul odors and ineffective cleaning incident to the emptying of solid deposits. Better still is the use of a paraffined bag inside the can to receive the deposits.

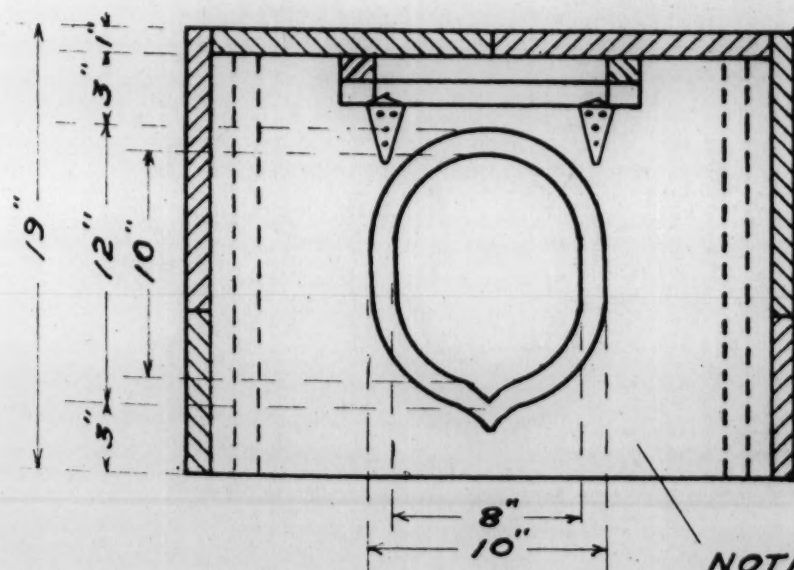
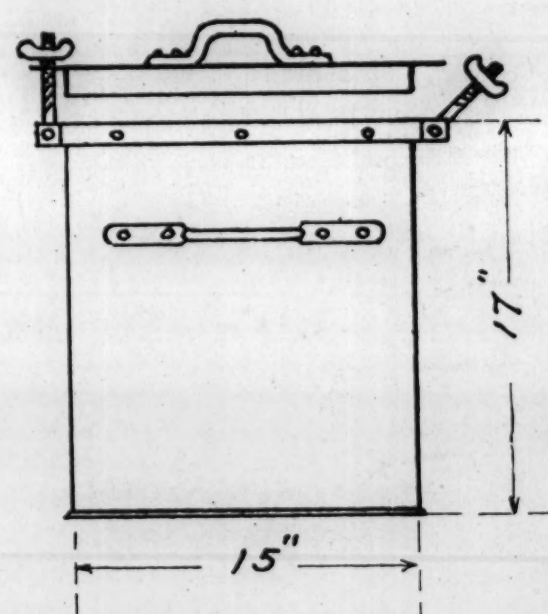
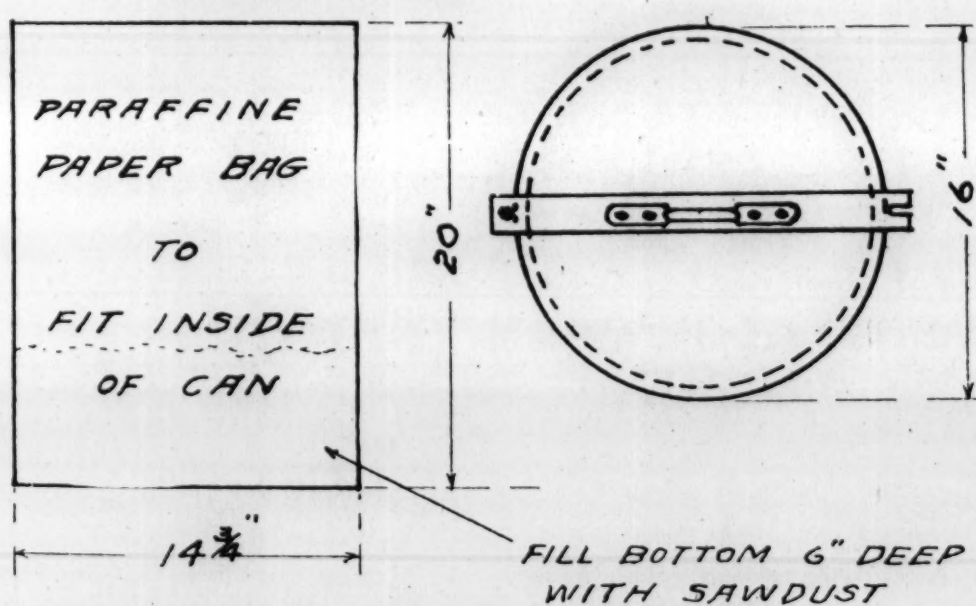
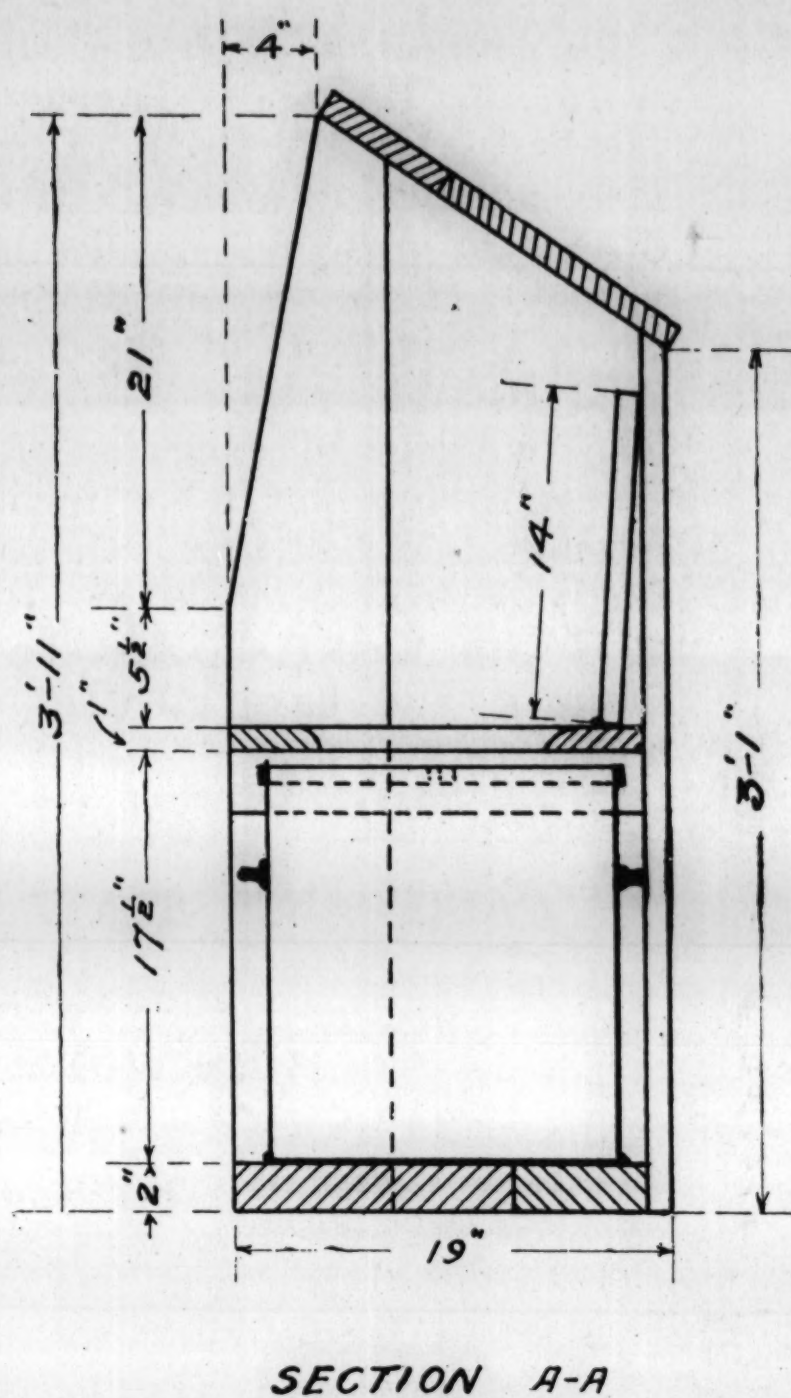
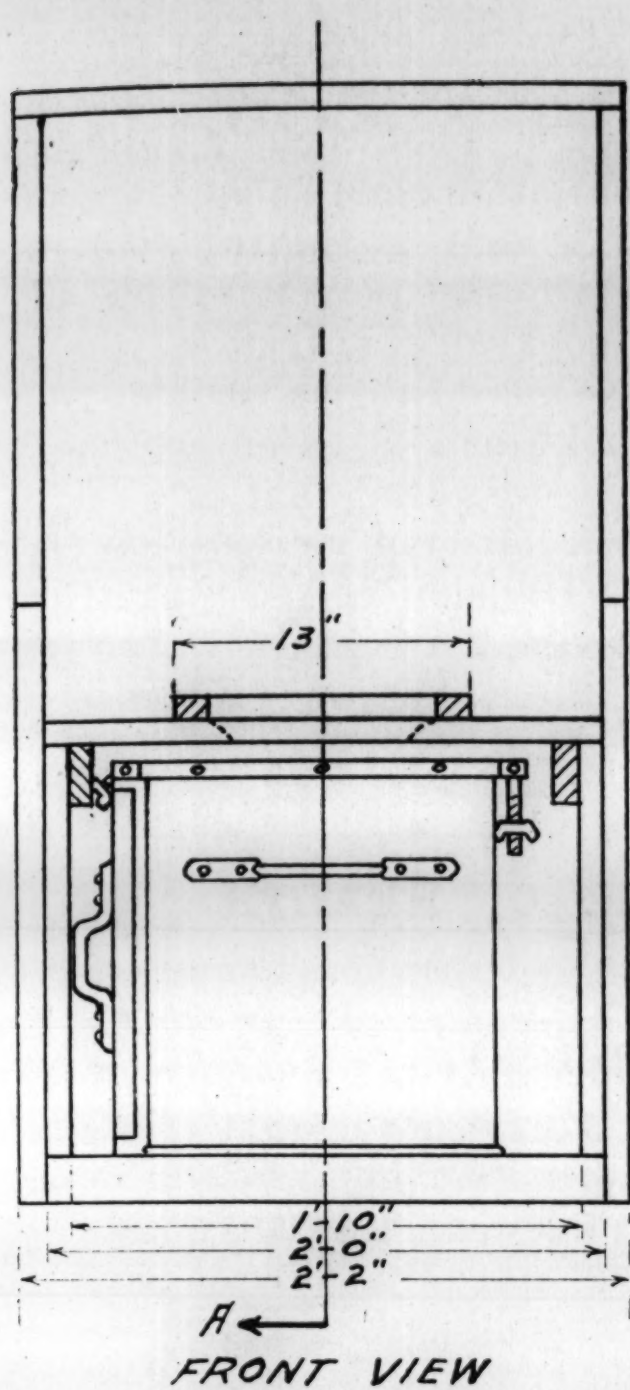
Complaint is often made that a few of the men persist in fouling the toilets, the trouble being caused by the men standing on the seats, for fear of contracting vermin or disease or because the seat is wet or defiled. Constant inspection and cleaning of the toilets will largely do away with this difficulty. The method by which the Treadwell mine met this difficulty is stated above. Williamson's toilet and the seatless toilet are both constructed to meet this difficulty.

Even if suitable toilets are installed in a mine and kept in good condition, they are of little value in the prevention of the spread of hookworm disease unless the men use them. A single stool from a heavily infected individual might contain thirty to forty thousand hookworm eggs. Such a stool deposited on the floor of a mine might spread the disease to a number of men. Getting the men to use the underground toilets is a matter of mine discipline. If the superintendent lets it be known definitely that the toilets must be used and sticks to it there will be little trouble. In general, superintendents and foremen are anxious to keep the mine clean and undertake to hold their men to strict account for any dereliction. One superintendent discharged the entire force on one level because some one had committed a nuisance on that level and the men refused to name the culprit. In most mines it is generally understood that deliberate disregard of the rule against such nuisance is to be followed by summary discharge.

### Common Salt Kills Larvæ.

In spite of rules and precautions stools will sometimes be deposited in mines. It has been found by experiments conducted by the Biological Division of the California State Board of Health, that common salt in sufficient quantity will kill the developing hookworm larvæ. We advise therefore that whenever a stool is found in a mine that it be taken up and thrown into the toilet and that the earth where it was deposited be sprinkled thickly with several pounds of salt. This will kill the hookworm larvæ and prevent the spread of the infection.





TONOPAH BELMONT  
DEVELOPMENT CO.  
MINE TOILET

Jan. 14, 1918. C.K.M.

Scale 1 1/2" = 1'

NOTE - Provide for easy  
removal of seat.

PLATE II. Drawings of the toilet devised by G. F. Williamson.



In connection with the campaign for the eradication of hookworm the Biological Division of the California State Board of Health is making faecal examinations for hookworm diagnosis of large numbers of miners. If the examination shows that hookworm disease is present a notification card is sent to the infected individual. If the examination is negative the person examined is given a certificate of freedom from hookworm infection which is good for one year. A copy of this certificate is shown below. The privilege of examination for hookworm is extended free of charge to any one in California. It is suggested that mine superintendents in districts of the state which have not yet been surveyed for hookworm, apply to the Biological Division of the State Board of Health, East Hall, Berkeley, California, for containers for faecal samples, and have all the men in their employ examined for hookworm.

*Form of Hookworm Certificate.*

**CALIFORNIA STATE BOARD OF HEALTH**

BUREAU OF COMMUNICABLE DISEASES

BIOLOGICAL DIVISION

**HOOKWORM CERTIFICATE**

Berkeley, California

Date \_\_\_\_\_

THIS IS TO CERTIFY, That the excreta of \_\_\_\_\_  
have been examined and have been found free from HOOKWORM  
INFECTION.

\_\_\_\_\_  
Director Biological Division

IDENTIFICATION

Eyes \_\_\_\_\_ Hair \_\_\_\_\_  
Age \_\_\_\_\_ Height \_\_\_\_\_ Weight \_\_\_\_\_  
Signature \_\_\_\_\_

THIS CERTIFICATE IS GOOD FOR ONE YEAR FROM DATE

(ON REVERSE SIDE)

**HOW TO PREVENT HOOKWORM INFECTION**

YOUR HELP IS NECESSARY TO PREVENT THIS DISEASE

1. Never commit a nuisance in the mine. Use the toilets provided.
2. Use surface toilets wherever possible.
3. Scrub hands thoroughly before eating lunch.
4. Scrub hands thoroughly and take a hot shower at quitting time.
5. Boil out shift clothes at least twice a week.
6. Keep your mine shoes in good repair.

Very truly yours,

W. H. KELLOGG, M.D.,

Director, Bureau of Communicable Diseases

CHARLES A. KOFOID, Ph.D.,

Consulting Biologist

**REFERENCES CITED.**

Cumming, J. G., and White, J. H., Control of Hookworm Infection at the Deep Gold Mines of the Mother Lode, California, Bulletin 139, United States Bureau of Mines, 1917.

White, J. H., Underground Latrines for Mines. Technical Paper 132, United States Bureau of Mines.

These papers may be obtained free of charge on application to the United States Bureau of Mines, Washington, D. C.



## THE ENFORCEMENT OF THE OPHTHALMIA NEONATORUM LAW IN CALIFORNIA.

By EDWARD F. GLASER, M.D., San Francisco, Member California State Board of Health.

The birth certificate legally prescribed by the California State Board of Health has these important questions to be answered by the attending physician or midwife: "Was a prophylactic for ophthalmia neonatorum used?" and "If so, what?" The importance of giving proper and correct answers to these questions on the birth certificate and the prompt filing of the certificate within five days as prescribed by law, has been impressed upon obstetricians throughout the state, and much educational work relative to the importance of these measures has been done by state and local authorities, aided by interested civic betterment and medical societies. In order to be of service, vital statistics must be as accurate as possible; therefore all of the required data should be given upon the birth certificate. The great value to the child and its relatives of the legally acceptable and accepted birth certificate is obvious. With the numerous social and legal complications, both local and international, in these days of war, this value is vastly increased. Education, labor, war draft, inheritance, and many other situations, are dependent upon accurate data in birth certificates.

It was gratifying to observe in a summary of the December, 1917, data from birth certificates filed in the two large cities of San Francisco and Los Angeles, that in only a very small number of the birth certificates was there a failure to properly answer the question relative to the use of a prophylactic for ophthalmia neonatorum. In addition, there was a comparatively small number in which the prophylactic was not used. In San Francisco, with 669 birth certificates registered in December, 1917, no information was given in 10 cases, and no prophylactic was used in 17 other cases. In Los Angeles, out of 715 births in December, 1917, no information was supplied on 6 certificates, and the prophylactic was not used in 43 cases.

The following table indicates how generally the prophylactic was used during 1917 in the cities of central and southern California:

	Total number of births, 1917	Prophy- lactic used	Prophy- lactic not used	Not stated
Central California—				
Alameda .....	417	399	4	14
Berkeley .....	746	728	18	—
Bakersfield .....	495	376	79	40
San Jose .....	620	542	74	4
Fresno .....	879	741	95	43
Sacramento .....	1,344	1,249	52	43
Stockton .....	714	611	89	14
Southern California—				
Long Beach .....	525	502	20	3
Pasadena .....	611	516	22	73
Riverside .....	276	194	49	33
San Bernardino .....	369	318	15	36
Redlands .....	158	107	17	34
San Diego .....	1,120	989	114	17
Santa Barbara .....	354	268	55	31
Totals .....	8,628	7,540	703	385
Per cent .....	100.0	87.4	8.1	4.5



It should be noted that in 87.4 per cent of all of the 8,614 births occurring in these fourteen cities, the prophylactic was used. It should be added that most births in which the prophylactic is not used occur among the foreign population. Special commendation should be given to the record made by Berkeley, which shows that the question regarding the use of the prophylactic was answered in every one of the 746 birth certificates filed during 1917. San Jose and Long Beach also secured remarkably good results in securing answers to this question.

"Blindness is too great a calamity to the individual and to the state to permit of any risk being taken." By the ophthalmia neonatorum law, the State Board of Health provides gratuitously to doctors, maternity hospitals and midwives the standard prophylactic which is distributed in the form of convenient and easily used ampules, obtainable from state and local health authorities. Information regarding the availability of this prophylactic has been given to all doctors and midwives. There can, therefore, be no legitimate excuse for neglect in its use. It is unnecessary to discuss the value of the definitely proven and world-accepted Crede method of prophylaxis, nor is it necessary to discuss the exact reduction as shown by authoritative ophthalmia neonatorum statistics, wherever the governing authorities have legislated and enforced the laws requiring the use of the standard prophylactic. This law makes compulsory the immediate reporting of all cases of ophthalmia neonatorum to the proper local health authority, so that adequate care and treatment may be assured at once in every case. Failure to comply constitutes a misdemeanor, punishable for the first offense by a fine not exceeding \$50; for a second offense by a fine not to exceed \$100, and for the third offense and thereafter, not to exceed \$200, and shall be considered a sufficient cause for revocation of the license to practice. By strict enforcement of this law the child, the physician, the community and the state are safeguarded.

At the last session of the legislature, the registering and licensing of midwives was placed under the State Board of Medical Examiners, and it is expected that this board will secure effective results through this registration. The State Board of Medical Examiners has adopted rules and regulations for midwives, and among the requirements the midwife must have knowledge of the simple hygiene of the eye, and must carry in her outfit the State Board of Health prophylactic for ophthalmia neonatorum, and she must use the prophylactic properly at each delivery attended. The State Board of Medical Examiners, of necessity, uses the machinery of the local health authorities for the control of midwives, and will send a copy of the rules and regulations governing midwives to each health officer in order that he may know the requirements.

The health authorities of the larger cities must be commended for the results that they are securing in the enforcement of the law. They have done a large amount of educational work relative to the reporting of ophthalmia neonatorum and concerning the use of the gratuitous distribution of the State Board of Health prophylactic. They have secured the use of this prophylactic in a very large percentage of cases, and they have also secured proper answers to the question regarding the use of the prophylactic in birth certificates filed. In the face of these results, however, it is not wise to rest, but to strenuously follow



up the few cases where through ignorance, carelessness or neglect, the law is not fully observed. It is in these few cases that the great danger lies; danger of the dread disease which is responsible for the greater percentage of children in our institutions for the blind.

Dr. William C. Hassler, Health Officer of San Francisco, deserves much credit for the excellent results obtained through the efficient and persistent efforts of his office in securing promptly filed and properly answered birth certificates. To every physician neglecting to answer the opthalmia neonatorum question, or not answering it properly, he forwarded at once a forceful letter, calling attention to the neglect of duty and demanding proper compliance; further neglect to be reported to the proper state authorities.

It is hoped that soon every community in California will have a sufficiently large force of public nurses in order to make it possible to thoroughly investigate, report and follow up every case of eye disease in infants and children. Every encouragement should be extended to medical societies, health and public welfare associations, and to such organizations as the California State Society for the Prevention of Blindness, all of which may aid greatly in stimulating public interest and general knowledge, and which may cooperate in securing the thorough enforcement of the law.

### SUGGESTIONS SENT TO THE STATE INSTITUTIONS OF CALIFORNIA FOR FOOD CONSERVATION IN ACCORDANCE WITH THE PROCLAMATION OF THE UNITED STATES FOOD ADMINISTRATION.

By M. E. JAFFA, M.S., Consulting Nutrition Expert, California State Board of Health.

On January 1, 1918, there were 15,529 persons in state institutions. Feeding this large number of persons is a great expense and the state is determined that the regulations of the United States Food Administration shall be strictly observed in all of these institutions. Accordingly, these suggestions for conserving food in the hospitals, prisons, reform schools and homes for the feeble-minded have been prepared. These suggestions are arranged according to food classifications and it is believed that they will be of use to the managements of county hospitals, orphan asylums, homes for the aged, and other institutions where considerable numbers of people are fed at public expense. While all of these suggestions can not be followed by such institutions, it is believed that many of them will be of value, even to housewives.

- I. MEATS.
- II. FLOUR AND MEALS.
- III. BREAD.
- IV. BREAKFAST FOODS.
- V. PASTES.
- VI. SUGAR.
- VII. BUTTER.
- VIII. FATS.

#### I. MEATS.

##### a. *Beef, mutton and veal.*

All restrictions concerning the consumption of these three varieties of meats have been removed until March 13, 1918. If any emergency proclamation should be made previous to that date, due notice will be given.

Mutton, however, is far too expensive to be included in the general menu. Its purchase should be strictly limited.



**Pork:** Tuesdays and Saturdays are proclaimed to be porkless days and such proclamation should be rigidly observed.<sup>1</sup> The fact that an institution produces its own pork is no reason for the nonobservance of the request of the United States Food Administration.

"Porkless," however, does not apply to pork and beans.

**BACON:** This food should be eliminated entirely for the time being from the menu if it has to be purchased.

## II. FLOUR AND MEALS.

The United States Food Administration has specially stated that wheat must be conserved. Private families are largely carrying out this suggestion, therefore it becomes absolutely necessary, and it is only right and just, that the inmates of public institutions should do likewise. It must be remembered that conservation is not always economy—patriotism has to be considered, and if our government asks that we conserve wheat, it is our duty to act in accordance therewith whether such a practice be economical or otherwise. If, however, by conserving we can also practice economy—so much the better.

Among the flours which are available for the conservation of wheat, are: barley flour, rye flour, rice flour, corn flour, and grain sorghum flour.<sup>2</sup> Any one of these can be used to satisfy the provisions of the proclamation as issued by the Food Administration. The state institution should immediately purchase some or all of these substitutes to the extent of 20 per cent of the white flour usually used in the making of white wheat bread. It will be noticed that corn flour is stated, and by that is meant the white, refined corn flour or yellow flour. Either one is better suited to mixing with white flour for the making of bread than is corn meal, either white or yellow; the reason being that corn meal is coarse, and does not lend itself to the baking of bread as does the bolted corn flour.

In accordance with the proclamation of the Food Administration, two wheatless days a week, Mondays and Wednesdays, have been declared, as well as one wheatless meal a day. It is, therefore, very apparent that the purchase of the wheat substitutes above mentioned are urgently called for.

## III. BREAD.

The object of conservation bread, or, as it is termed by some, "war bread," is to conserve the wheat. The problem before us, then, is how can this best be done? There seems to be a great deal of confusion and misunderstanding in the minds of many concerning the solution of this problem.

It is agreed to by all that there is no one meal which can, for bread-making purposes, equal bakers' wheat flour, and, furthermore, there is no other meal which can be substituted entirely for the wheat and the resulting product be as palatable or as digestible. It is, therefore, seen that conservation of wheat will vary directly with the amounts of other meals used with this grain.

Again, it must be remembered that those meals or flours which are offered as substitutes will vary greatly in the amount that can be successfully used. For instance, rye flour can form a much larger percentage of a mixture with wheat than can barley, corn or rice.

**Bran** is being utilized by many for the purpose of conserving the wheat. It is not to be recommended during the present crisis as it might be under normal conditions.

In the first place bran is not digested as completely by the human as it is by the other animals, such as the cow, or poultry. The digestion coefficients for finely ground bran, in the case of man, are:

Protein .....	44 per cent
Carbohydrates .....	58 per cent
The corresponding figures for fine white flour are:	
Protein .....	91 per cent
Carbohydrates .....	98 per cent

<sup>1</sup>Since these suggestions were prepared the observance of Saturday as porkless day has been suspended.

<sup>2</sup>The protein assimilation for grain sorghum flour is low as compared with corn, wheat or barley, but the digestion co-efficient for starch is practically equal to that for the three grains mentioned.



There is much data on hand to show how the digestion coefficient of white flour is materially lowered by the addition of bran.

In the second place, bran is recommended by some on account of its mechanical action in the intestines. This is due to its roughage. There is, however, no need for this roughage as furnished by bran if we follow out the recommendations of the United States Food Administration in the matter of consuming a large amount of fruit and vegetables. All the roughage necessary for the human system is amply supplied by these foods. Therefore, it is not further required in the form of bread, and this is a very important point. Too much roughage is very undesirable.

**GRAHAM FLOUR** has been entirely substituted, by many, for wheat flour on wheatless days. This statement is made on the basis of newspaper notices, correspondence, and personal conferences. That such a practice is ill-advised and really defeats its object is shown by the fact that graham flour is made by grinding the whole berry after it has been cleaned. It therefore represents all of the wheat. One might easily ask, then, "How can you conserve wheat by using 100 per cent wheat?" The best bakers' flour represents about three-fourths of the wheat.

Furthermore, there is a greater assimilation by the human system, of bakers' white flour than there is in the case of the true graham flour, the figures being 77 per cent to 91 per cent, as far as the protein is concerned.

Not only is it, therefore, poor conservation, but when wheat is made into graham flour there is no bran or shorts for cattle and poultry feeding. In some sections of the country we may find good substitutes for bran and shorts for cattle and poultry feeding, but these are few. It is poor economy to make all the wheat into graham flour and use it as a complete substitute for the white flour because there is lost, for all purposes, a certain amount of nutriment which is necessary to conserve for our animals.

The only rational place it would appear in the diet for graham flour, at present, is for the making of brown bread, formula for which is:

One-third graham flour.  
One-third cornmeal.  
One-third rye flour.

In this case we are conserving two-thirds of the normal amount of white flour used in the making of bread, which is a different proposition from using all graham in place of the white flour.<sup>3</sup>

From the foregoing it is easy to understand that the addition of bran and graham flour with the white flour is poor economy and a waste of good food.

It may be stated by some that graham flour and bran contain certain food accessories or vitamins which are absent, to a very large degree, in the white flour. While this may be true, it is also a fact that those who are eating largely of fruit, vegetables, milk, eggs, butter, cheese and meat have a sufficient amount of vitamins to satisfy, and amply so, the requirements of the human body.

Cornmeal has been advocated as a substitute for a part of the wheat flour in the making of bread. From the experiences of many, both here and abroad, it would appear that the best use cornmeal and corn flour can be put to, as far as bread making is concerned, is in the form of muffins, hot breads, etc. From one-half to two-thirds of white flour can be conserved whenever the corn products are thus used, and in this connection it should be stated that a far more palatable and digestible product results from the mixture of corn and wheat than from corn alone. It is true that various recipes have been offered for the making of bread with corn, but these, on the whole, have not yielded as satisfactory a result as have the products made from the mixture of wheat and other cereals, such as barley, rice and rye.

In order to get the best results with the cornmeal, it should be scalded and made into a porridge or mush, and then when cool, added to the other bread ingredients. This means much more work and trouble in the process of bread making. The exception to the above is when cornmeal is used as an ingredient of brown bread, as indicated under graham flour.

It goes without saying, of course, that cornmeal can be used as a great conserver of wheat in the form of breakfast food.

<sup>3</sup>At the same time, barley flour can be substituted for graham flour in the making of brown bread.



**Rye Flour** makes an admirable substitute for a portion of the wheat flour in the making of bread. The rye loaf is very palatable and at the same time shows high coefficients of digestibility—far higher than those indicated for the graham loaf, so that in the use of rye we not only conserve the wheat, but do not lower the digestion coefficients. In other words, there is little if any difference between the assimilation of bread made from white flour and that made from a mixture of wheat and rye flours.

**Barley Flour** has been suggested as a substitute for part of the wheat flour in the making of bread.

The percentage of barley flour, however, which can be mixed with the wheat flour is far less than when rye is the substitute. In the latter case upwards of 50 per cent can be satisfactorily incorporated in the mixture, while in the former the best results are obtained with from 10 to 20 per cent. At the same time, even with this small percentage, a *large* amount of wheat flour can be conserved in the course of a few months.

**Rice and Rice Flour** have also been recommended as substitutes in part for white flour in bread making. Excellent breads are made with the combination of wheat flour, rice flour, and barley flour. Among the advantages of rice flour may be mentioned:

- (1) High digestion coefficients.
- (2) The fact that it tends to produce a white loaf, whereas the addition of barley somewhat darkens the bread. Unfortunately the color plays too important a part with many in the choice of making and baking of breads.

The proclamation from Washington and also from the California Food Administrator's office is as follows:

"A baker's bread of mixed flours, beginning Monday with a 5 per cent substitution of other cereals for wheat, until 20 per cent substitution is reached February 24.

Sales by retailers to householders of an equal amount of substitute flours for every pound of wheat flour purchased at the time the wheat flour is bought."

It would appear that the best formulas to start with would be 95 per cent wheat and 5 per cent barley. This percentage of barley can be increased to 10 per cent without interfering in any way with the palatability or nutritive value of the loaf.

For a 15 per cent dilution 10 per cent of barley flour and 5 per cent of rye flour is recommended. As alternatives:

- (1) 10 per cent of barley flour, 5 per cent of rice flour.
- (2) 10 per cent of barley flour and 5 per cent of corn flour, white. (Not cornmeal.)

Twenty per cent dilution which is called for by the twenty-fourth of February, 1918, a desirable mixture would be 10 per cent of barley flour, 5 per cent of rice flour, and 5 per cent of corn flour. As alternatives:

- (1) 15 per cent barley flour, 2.5 per cent rye flour, and 2.5 per cent corn flour.
- (2) 15 per cent barley flour, 5 per cent corn flour.
- (3) 15 per cent barley flour, 5 per cent rice flour.
- (4) 12 per cent barley flour, 4 per cent corn flour and 4 per cent rice flour.

A bread properly made from any of the foregoing mixtures will be palatable, digestible and possess a nutritive value practically equal to a loaf made entirely from wheat flour.

There have been made and there is on the market today, breads made from mixtures which contains more than 20 per cent substitutions. Consequently, there should be no trouble whatever on the part of the baker in meeting the provisions of the proclamation of the United States Food Administration.

A much greater conservation of wheat flour can be realized by the making of:

- (1) Rye bread, a good mixture for which is half rye and half white flour.
- (2) Boston brown bread, the formula for which is  $\frac{1}{3}$  graham,  $\frac{1}{3}$  rye, and  $\frac{1}{3}$  corn flour.

An excellent brown bread has also been made by using

$\frac{1}{3}$  barley flour,  
 $\frac{1}{3}$  cornmeal flour,  
 $\frac{1}{3}$  rye flour.

The last formula saves 100 per cent of the wheat, and it is, therefore, urgently suggested that this mixture be tried for small groups wherever it is possible.

**Potato Bread:** Potatoes have also been suggested as a substitute for part of the wheat flour. There are recipes for such utilization of potatoes. In the home a much larger amount could be cooperated in the mixture than is always feasible on a large scale, such as an institution bakery. Bakeries,



however, have placed on the market a bread made from a mixture of flour containing 10 per cent barley flour, 8 per cent mashed potatoes, and 82 per cent white flour. This, therefore, is a workable mixture for any state institution bakery, and may be taken advantage of when the potato situation warrants.

#### IV. BREAKFAST FOODS.

No wheat breakfast food should be purchased by any state institution. Corn, oats and barley are excellent substitutes and also furnish variety.

There is for sale on the market several different preparations from barley such as Cream of Barley, Barley Flakes, Barley Mush, etc. These all are very palatable and relished by all who have experimented with them. For those whose digestive systems will not tolerate the coarse mushes, there are recommended such breakfast foods as Barley Mush or Cream of Barley which are just as easily digested as is Cream of Wheat, Farina or Germea.

Rice could also be included in the list of substitutes for wheat breakfast foods, but this cereal, it would appear, should be reserved for the supper menu.

#### V. PASTES.

While the total elimination of these from the diet are not requested by the United States Food Administration there is, however, a strong appeal to use these pastes, vermicelli, macaroni and spaghetti, very sparingly. It is fortunate that elimination is not asked for because the pastes are well adapted for supper dishes in the state hospitals, etc.

#### VI. SUGAR.

The sugar situation is a critical one according to government advices. We are also informed that brown sugar should not be served in the place of the dry granulated. Such a practice is not true conservation because the white sugar is the brown sugar further refined. Therefore, if brown sugar is used to any extent there will be manufactured a correspondingly less amount of white sugar as just stated.

There has been suggested by the Food Administration an honor ration which includes twelve ounces of sugar per week, per person. This does not include sugar used for preserves, jelly making, etc. This amount, twelve ounces, is in excess of that suggested for patients in the state hospitals, but on the other hand is less than that which has been suggested for officers and employees. It would therefore appear that it would be necessary to observe stricter economy in the use of this article of food, and in connection therewith more syrups, honey, etc., should be used. This is really a matter of conservation and not of general economy because the cost of white granulated sugar, as such, is lower than is the cost of sugar in many of the high-grade syrups or honey, but it must be remembered that we are asked to conserve the sugar, and to use the syrups, which can not be transported and utilized as can be the sugar. Certainly the officers and employees of any of the institutions should be as willing to cooperate with the Government as is any person not in government employ.

#### VII. BUTTER.

The honor ration previously referred to allows for table use seven ounces of butter per person, per week. This is just one-half of the apportionment made for the officers and employees in the state hospitals, and only four-fifths of that for the patients.

If for patriotic reasons people in private life are willing to be satisfied with one ounce of butter per day, then it follows that those in government employ should try to act accordingly. For those who wish to adopt this honor ration it might be suggested that butter be served at only two meals; no butter being eaten at the hearty meal of the day.

#### VIII. FATS.

The honor ration also includes seven ounces of fat for cooking, per person, per week, or one ounce per day. The fats which should be used are the liquid oils, and not the solid fats. This is the general rule which, of course, should be



modified for institutions which are producing their own fats, drippings, etc. When fats are to be purchased, however, this request of the Food Administration should be borne in mind.

It might be of interest in this connection to state that the voluntary honor ration was prepared by Dr. Vernon Kellogg, associated with Herbert Hoover in the work of the National Food Administration. It was prepared for one week's wartime consumption for one individual and has the sanction of the Food Administration heads as meeting the needs of conservation. It is as follows:

Meat and meat products, 2 pounds.  
 Butter for table use, 7 ounces.  
 Fat for cooking, 7 ounces.  
 Wheat flour for cooking, 7 ounces.  
 Bread of mixed cereals, 3 pounds and 8 ounces.  
 Sugar (not including sugar in preserves), 12 ounces.

It must not be understood that the ration includes the total amount of food per day. It does not. It merely refers to those foods or food products which must be conserved, and does not limit in any way the consumption of such foods as:

- (1) Fish, milk, cheese, poultry, eggs, etc.
- (2) Fruit and vegetables.
- (3) Syrups, honey, etc.

### A TUBERCULOSIS SUMMARY.

There were 7,017 cases of tuberculosis reported to the California State Board of Health during the year 1917. Special report cards with data relative to social and economic conditions were sent to the Bureau of Tuberculosis with the reports of nearly 6,500 of these cases. The following table gives a summary of the information thus secured:

Data in Tuberculosis Cases Reported During the Year 1917.

Age—		Housing—	
Under 5 years	99	Good	2,487
5 to 14 years	314	Fair	1,050
15 to 24 years	1,142	Poor	558
25 to 34 years	2,005	Unknown	2,397
35 to 44 years	1,274	Financial condition—	
45 years and over	1,445	Independent	1,163
Unknown	213	Wage-earner	3,023
Sex—		Indigent	857
Male	4,208	Unknown	1,449
Female	2,284	Occupational condition—	
Marital condition—		Good	1,518
Single	2,940	Fair	1,573
Married	2,358	Poor	599
Widowed	352	Unknown	2,802
Divorced	150	Nativity—	
Unknown	692	California	1,181
Dwelling—		Elsewhere in United States	2,346
Detached	1,799	Foreign	2,150
Hotel	311	Unknown	815
Flat	323	Race or color—	
Hospital	854	White	6,120
Sanatorium	524	Negro	99
Tent	122	Indian	9
Boarding	139	Chinese	105
Tenement	177	Japanese	159
Unknown	2,243		



Length of residence in California—		Husband -----	67
Under 1 year -----	826	Wife -----	59
1 year -----	226	Children -----	88
2 years -----	255	Others -----	278
3 years -----	248	Bacteriological examination—Tuber-	
4 years -----	264	cle bacilli—	
5 years -----	293	Positive -----	3,827
6 years -----	237	Negative -----	532
7 years -----	195	Not stated -----	2,133
8 years -----	144	Prognosis—	
9 years -----	148	Good -----	848
10 years -----	274	Doubtful -----	1,475
10 to 20 years -----	933	Bad -----	1,185
Over 20 years -----	1,327	Not stated -----	2,984
Unknown -----	1,122	Type—	
Number of persons in family—		Tuberculosis of lungs -----	6,296
Families of two -----	631	Tuberculosis of other organs -----	1,073
Families of three -----	614	Duplicated -----	827
Families of four and over -----	1,399	Totals—	
Tuberculosis in family—		Cases reported with data -----	6,492
Father -----	236	Cases reported without data -----	525
Mother -----	282	Cases reported at time of death or	
Brother -----	262	later -----	380
Sister -----	299	Total living cases -----	6,112

### MUNICIPAL NURSING IN LOS ANGELES.

In the April, 1917, Bulletin there appeared an article on the reorganization of municipal nursing in Los Angeles, which reorganization was consummated early in 1917. How effective the new methods have been may be determined by a study of the following table, which shows the comparative results:

#### NURSING DIVISION LOS ANGELES DEPARTMENT OF HEALTH.

##### Comparative Report for the Years 1916 and 1917.

Whole division:	1916	1917
Home visits -----	28,636	40,707
Making an increase of visits during 1917 -----		12,071
Miscellaneous visits -----	5,611	2,783
Making a decrease of visit during 1917 -----		2,828
Milk station report:		
Milk modifications taught -----	79	177
Average pints per day receiving milk formula -----	16	10
Average pints per day receiving home feedings -----	47	76
Average mothers per day receiving milk -----	8	7
Quarts of milk bought -----	15,310	27,217
Welfare service:		
Baby conferences held -----	328	344
Attendance at conferences -----	2,881	4,393
Making 16 more conferences held with increased attendance		
during 1917 of -----		1,512
Home visits to babies -----	3,276	9,368
Making an increase of visits during 1917 of -----		6,092
Prenatal and maternity service:		
Home visits -----	3,884	4,112
Making an increase of visits for 1917 of -----		228
Tuberculosis service:		
Clinic attendance -----	21,440	23,830
Making an increased attendance in 1917 of -----		2,390
Home visits to patients -----	10,125	11,674
Making an increase of visits for 1917 -----		1,549



District service:		
Home visits -----	8,687	8,966
Making an increase of visits for 1917-----		279
School service:		
Home visits -----	2,664	3,842
Making an increase of visits for 1917-----		1,178
Communicable disease service:		
No service until November, 1916.		
Home visits to district cases -----		1,025
Home visits to school children -----		1,720
		<hr/>
		2,745
Parochial schools:		
Visits -----	116	208
Child welfare:		
Visits to maternity homes and hospitals-----	202	381
Visits to day nurseries and boarding homes-----	887	1,196

## FEBRUARY MEETING OF THE CALIFORNIA STATE BOARD OF HEALTH.

The State Board of Health met in Sacramento on February 2, 1918. The following members were present: Dr. George E. Ebright, president; Dr. Fred F. Gundrum, vice president; Dr. Edward F. Glaser, Dr. Robert A. Peers, Dr. Adelaide Brown, and Dr. Wilfred H. Kellogg, secretary.

Dr. Wilfred H. Kellogg was appointed Secretary of the board to succeed Dr. W. A. Sawyer, resigned. Dr. Frank L. Kelly, Epidemiologist in the Bureau of Communicable Diseases, was appointed Acting Director of the Bureau of Communicable Diseases. A leave of absence was granted to Prof. Charles A. Kofoed, Consulting Biologist and Director of the Division of Biology, Bureau of Communicable Diseases, such leave to extend during the period of the war. Prof. William W. Cort was appointed to succeed Professor Kofoed.

Upon recommendation of the Director of the Bureau of Communicable Diseases, it was determined that the Fresno Branch Laboratory should be discontinued March 1, 1918.

Upon the recommendation of the Director of the Bureau of Registration of Nurses, eleven training schools for nurses connected with hospitals in California, having been inspected and found to meet the full requirements of the board, were placed on the accredited list for one year. Six nurses were given certificates of registration through reciprocity.

The Director of the Bureau of Registration of Nurses in a communication to the board stated that the National Council of Defense urges cooperation in meeting the nursing problems that have arisen because of the war, such cooperation to be based chiefly upon the maintenance of a high standard of nursing education, urging hospitals to increase facilities for training nurses. The council also asks that discouragement be given to short-term hospital courses, since they tend to break down the organized machinery of training for nurses. The board has instructed that the National Council of Defense be assured that every effort will be made to maintain a high standard of nursing in California.

Temporary permits to operate swimming pools were granted to the owners of seventeen such swimming pools, pending the personal inspection by the Director of the Bureau of Sanitary Engineering.

A permit was granted to the Banning Water Company to supply water to the inhabitants of Banning, with the provisions that the supply be kept safe and sanitary and that no modifications or additions to works or source be undertaken without the approval of the board.

One hundred and two cases of alleged violations of the Food and Drug Acts were set for hearing. Fifty-three of these cases were referred to district attorneys for prosecution.

WILFRED H. KELLOGG,  
Secretary.



## REPORT OF THE BUREAU OF ADMINISTRATION FOR JANUARY, 1918.

W. H. KELLOGG, M.D., Director.

### ACTIVITIES OF THE STATE DISTRICT HEALTH OFFICERS.

#### North Coast District.

ALLEN F. GILLIHAN, M.D., State District Health Officer, Santa Rosa.

Sewage disposal problems were investigated at Veterans' Home. The problem of the Santa Rosa watershed was taken up with the District Attorney for Sonoma County. Investigations were made into scarlet fever at Santa Rosa. Napa, St. Helena and Calistoga, Sausalito, San Rafael and San Anselmo were visited during January. A special trip was made to Willits on a diphtheria investigation. Healdsburg, Geyserville and Cloverdale were visited on an investigation regarding a rearrangement of registration areas. Sonoma State Home was visited with regard to sewage disposal and communicable diseases.

#### Northern District.

HAROLD F. GRAY, Gr. P.H., State District Health Officer, Chico.

During January Mr. Gray visited the following cities in his district: Auburn, Colfax, Lincoln, Marysville, Hammonton, Sacramento, Live Oak, Corning, Vina, Gridley, Red Bluff, Woodland, Esparto, Williams, Colusa, Yreka, Dunsmuir, Sisson and Kennett. The problems dealt with concern chiefly sewage disposal, venereal disease control and the control of communicable disease in the schools.

#### Central Coast District.

R. N. HOYT, State District Health Officer, San Jose.

Mr. Hoyt during January spent considerable time in the investigation of sanitary conditions in the vicinity of Camp Fremont, Menlo Park and Palo Alto. Among other places visited during the month were the following: San Luis Obispo, Arroyo Grande, Los Gatos, Alma, Berkeley, Hayward, San Francisco, Santa Cruz, Monterey, Salinas and Gilroy.

#### Central District.

RALPH W. NAUSS, M.D., State District Health Officer, Fresno.

The hookworm problem in the mines was investigated during January in the mines, particularly in Amador and Tuolumne counties. An investigation into diphtheria at Plymouth was also made. Several addresses were given at Hanford and considerable work was done relative to the formation of a local health district in Kings County. The following are among the places visited by Dr. Nauss during January: Plymouth, Oakdale, Sonora, Visalia, Hanford, Merced, Madera, Stockton, Newman, Gustine, Los Banos, and Firebaugh.

#### South Coast District.

EDWARD D. WARD, M.D., State District Health Officer,  
210 Union League Building, Los Angeles.

Dr. Ward during January had many conferences with the health officers in his district. Investigations into smallpox in Ventura County were undertaken. The formation of local health districts was discussed with representatives of several towns in Los Angeles County. The following places were visited during the month: El Monte, Covina, Watts, Pomona, Oxnard, Pasadena, El Segundo, Glendale, Alhambra, Redondo Beach, Santa Barbara, Santa Maria, Lompoc, Fort McArthur and San Pedro.



**Southern District.**

EDWARD A. INGHAM, State District Health Officer, Riverside.

Mr. Ingham made a trip to Blythe during January for the purpose of continuing an investigation into the typhoid fever situation. Two trips were made to Los Angeles for the purpose of taking up various routine matters with the State Board of Health branch bureaus. Redlands, Corona and San Bernardino were visited and various health problems were taken up with the health officers of these cities.

**MORBIDITY REPORTS.**

GUY P. JONES, Morbidity Statistician.

**Cerebrospinal Meningitis (epidemic).**

The twenty-seven cases of this disease reported during January were distributed over twelve counties of this state. There was no outbreak of any special significance. These cases were distributed as follows: Oakland 1, Los Angeles County 2, Los Angeles (city) 4, Orange County 2, Napa County 1, Riverside County 1, San Diego Naval Training Station 2, San Francisco 4, Presidio 1, Ontario 1, San Jose 3, Shasta County 1, Mare Island 3, Lindsay 1.

**Smallpox.**

There were forty-two cases of smallpox reported during January. These cases appeared in the following places: Fresno 3, Imperial County 1, El Centro 1, Holtville 2, Bakersfield 1, Maricopa 2, Glendale 1, Los Angeles 5, Venice 1, Nevada County 3, Grass Valley 1, Nevada City 3, Orange County 1, Santa Ana 1, Riverside 1, Sacramento 3, San Bernardino 1, Needles 1, Redlands 2, San Francisco 6, Shasta County 1, and Ventura County 1.

**Poliomyelitis.**

The nine cases reported during January were distributed as follows: Oakland 1, Whittier 1, Plumas County 2, Sacramento 1, Sonoma County 2, Visalia 1, and Yuba County 1.

**Typhoid Fever.**

There were fewer cases of typhoid during January. Eighty-one cases were reported. These occurred in twenty-three counties of the state. There was no outbreak of special importance.

**Measles and German Measles.**

There were 2,561 cases of measles and 581 cases of German measles reported during January. This shows a considerable increase in the prevalence of this disease over December and is a much larger number than was reported during January of 1917.



*Morbidity for January, 1918, by Weeks.*

	Week ending—					Total, Jan., 1918	Total, Jan., 1917
	Jan. 5	Jan. 12	Jan. 19	Jan. 26	Feb. 2		
Anthrax -----		1	1		2	4	1
Beri-beri -----							
Cerebrospinal meningitis (epidemic) -----	9	5	3	7	3	27	9
Chickenpox -----	151	139	208	175	167	840	594
Cholera, Asiatic -----							
Dengue -----							
Diphtheria -----	67	51	77	68	77	340	354
Dysentery -----		2				2	
Erysipelas -----	9	14	8	10	19	60	58
German measles -----	90	63	140	134	154	581	16
Glanders -----							
Gonococcus infection -----	44	56	38	33	40	211	207
Hookworm -----					11	11	
Leprosy -----					2	2	2
Malaria -----	6	4	7	3	1	21	15
Measles -----	240	389	509	653	770	2,561	1,606
Mumps -----	55	94	94	129	104	476	649
Ophthalmia neonatorum -----		1	1			2	4
Paratyphoid -----		1				1	0
Pellagra -----	2					2	0
Plague -----							
Pneumonia -----	104	91	78	73	86	432	325
Poliomyelitis -----	3		1	2	3	9	7
Rabies -----							
Rocky Mountain spotted fever -----							
Scarlet fever -----	93	129	109	116	112	559	606
Smallpox -----	7	4	14	8	9	42	40
Syphilis -----	59	38	41	33	53	224	177
Tetanus -----			1		1	2	2
Trachoma -----	9	1				10	15
Trichinosis -----			1			1	0
Tuberculosis -----	129	102	137	130	118	616	683
Typhus fever -----							1
Typhoid fever -----	24	9	14	12	22	81	134
Whooping cough -----	44	117	69	141	99	470	104
Yellow fever -----							
Totals -----	1,145	1,311	1,551	1,727	1,853	7,587	5,609

**SANITARY INSPECTIONS.**

EDWARD T. ROSS, Sanitary Inspector.

During the month of January, all ferry steamers plying between San Francisco, Oakland, Sausalito and Point Richmond, and all river steamers plying between San Francisco, Sacramento, Stockton and up-river points, were reinspected. All sanitary improvements recommended on ferry steamers and the majority of those recommended on river steamers have been made. These improvements include the cleaning and ventilating of crews' quarters; the installation of steel bunks, sanitary drinking fountains, modern plumbing facilities, and the screening of mess spaces, galleys and toilets.

Reinspections were made of the cities of Palo Alto, Monterey and Santa Cruz. The majority of sanitary improvements recommended in these cities have been made.

The last two weeks of the month were spent in making a sanitary survey of the extra cantonment zone at Camp Fremont, in company with Mr. Robert N. Hoyt, District Health Officer. This survey covered the inspection of food supply places, dairies, stables, and public and private premises.

Inspections and reinspections were made in Vacaville, Dixon, Fair Oaks, Sacramento, Stockton, Gilroy, San Jose and San Francisco.



## Summary of Operations.

Cities reinspected -----	3	Laundries reinspected -----	5
Ferry steamers reinspected ----	21	Miscellaneous premises inspected	
River steamers reinspected ----	36	and reinspected -----	14
Food supply places reinspected--	32	Nuisances abated -----	232
Public schools reinspected -----	4		

## Inspections, Extra Cantonment Zone, Camp Fremont.

Food supply places -----	25	Laundries -----	2
Hotels and rooming houses ----	6	Pool halls -----	3
Public schools -----	2	Miscellaneous premises -----	30
Dairies -----	3		

An inspection was also made of the Mosquito Abatement District adjacent to Camp Fremont. Excellent work is being done in this district.

## REPORT OF THE BUREAU OF COMMUNICABLE DISEASES FOR JANUARY, 1918.

WILFRED H. KELLOGG, M.D., Director.

Attention is called to a change in the diagnostic outfits for diphtheria which are put out by the Hygienic Laboratory. Instead of the tubes containing a sterile swab which is planted on the culture media upon the receipt of the specimen in the laboratory, the outfit will consist of tubes of the serum culture medium and sterile swabs contained in envelopes. The physician will make the inoculation on to the surface of the culture medium himself, destroying the swab and returning by mail the inoculated tube. These tubes will then be placed in the incubator immediately upon receipt from the post office every night and will be ready to examine immediately upon the opening of the laboratory. This method will result in a saving of time, in some cases of as much as thirty-six hours in the reporting of the result to the physician. Tubes of culture media in these outfits will be hermetically sealed so that they will keep indefinitely. It is hoped that the new supplies necessary for this change will be received shortly so that the system can be instituted very soon.

### Trichinosis Cases.

Another instance of trichinosis from eating uninspected and insufficiently cooked pork has come to the attention of this department. A citizen at Livermore raised two hogs and butchered them in December, keeping one-half of one for himself, giving the other half of the same hog to his partner, the other hog being sold to two other families. Two of the families concerned, the one who raised the hogs being one of them, prepared and ate uncooked sausage, after the custom of some Italian families. Four members of one family, the mother and three children, were taken ill, the infection showing varying degrees in the different individuals according to the amount of the meat consumed, the milder cases being affected by slight pains with swelling of the face and no noticeable rise in temperature. Two cases developed in the other family, one of them being fatal. The other two families cooked their meats thoroughly and no cases resulted.

Inquiry by the State Board of Health investigator brought out the fact that these hogs had been brought from Tracy by the owner when he moved from that place to Livermore; that at his former location rats had been a great nuisance. In fact, the prevalence of the rats had been one of the reasons for his moving. It is a fact that should be more generally known that trichinosis is a disease that is carried through the medium of the rat; that it is acquired only by the eating of the flesh of an animal that is infected with the parasite, and that rats become infected by eating infected pork, and that hogs get their infection by eating the rat. Man, of course, gets his infection by eating the hog. Therefore, if one link in the chain, namely, the rat, could be disposed of trichinosis would cease to exist. Therefore, we have one more reason why the war against rats should be relentlessly prosecuted.



## Division of Biological Examinations.

*Summary of Examinations Made in the California State Hygienic Laboratory During the Month of January, 1918.*

Condition suspected	Positive	Negative	In- conclusive	Total
<b>Main Laboratory at Berkeley—</b>				
Anthrax -----	2	3		5
Diphtheria (diagnosis) -----	13	47	2	62
Diphtheria (release) -----	13	32	1	46
Diphtheria (school investigations) <sup>1</sup> -----	14	300		314
Gonococcus infection -----	38	28		66
Malaria -----		1		1
Rabies -----	4	5		9
Syphilis (Wassermann test) -----	129	569	67	765
Tuberculosis (sputum examinations) -----	8	25		33
Typhoid (Widal test) -----	8	8	1	17
Typhoid (excreta) -----	1	9		10
Typhoid (blood culture) -----		1		1
Paratyphoid -----		3		3
Trichinosis -----	1			1
Miscellaneous -----				5
				1,338
<b>Northern Branch at Sacramento—</b>				
Diphtheria (diagnosis) -----	9	41		50
Diphtheria (release) -----	18	16		34
Malaria -----		7		7
Tuberculosis (sputum examinations) -----	8	21		29
Typhoid (Widal test) -----	8	10	1	19
				139
<b>Central Branch at Fresno—</b>				
Diphtheria (diagnosis) -----	16	39	10	65
Diphtheria (release) -----	19	48		67
Gonococcus infection -----		1		1
Malaria -----		1		1
Tuberculosis (sputum examinations) -----	2	14		16
Typhoid (Widal test) -----		9		9
				159
<b>Southern Branch at Los Angeles—</b>				
Anthrax -----	1			1
Diphtheria (diagnosis) -----	30	109	11	150
Diphtheria (release) -----	48	64	1	113
Diphtheria (school investigations) <sup>2</sup> -----	5	41	3	49
Gonococcus infection -----	4	3	1	8
Malaria -----		1		1
Tuberculosis (sputum examinations) -----	5	27	1	33
Typhoid (Widal test) -----	2	7		9
Typhoid (excreta) -----		2		2
Miscellaneous -----				4
Water -----				70
Sewage -----				8
				448
Total number of examinations -----				2,084

<sup>1</sup>Cultures taken from school children at Amador City, 77; Angels Camp, 36; Soledad, 23, and Willits, 178.

<sup>2</sup>Cultures taken from school children at the Rowan School, Los Angeles County, 18, and Irwindale, 31.



### Division of Epidemiological Investigations.

#### *Epidemiological Investigations and Other Special Investigations During January, 1918.*

##### Main Laboratory at Berkeley—

An investigation of a case of trichinosis at Livermore.

An investigation of a case of suspected leprosy at San Luis Obispo.

An investigation of a case of suspected leprosy at Pittsburg.

An investigation of cases of typhoid fever at Blythe.

Total number of investigations..... 4

### Division of Preventive Therapeutics.

#### *Pasteur Treatment for the Prevention of Rabies by the State Hygienic Laboratory During the Month of January, 1918.*

	Treatment commenced	Treatment completed
Main laboratory at Berkeley.....	1	0
Northern branch at Sacramento.....	0	0
Central branch at Fresno.....	0	3
Southern branch at Los Angeles.....	0	0
Laboratory of Sacramento Board of Health, by deputized bacteriologist .....	0	0
Laboratory of Los Angeles Board of Health, by deputized bacteriologist .....	0	0
Laboratory of San Diego City Board of Health, by deputized bacteriologist .....	0	0
Laboratory of Letterman General Hospital, Presidio, by deputized bacteriologist .....	0	0
Laboratory of United States Naval Hospital, Mare Island, by deputized bacteriologist.....	0	0
	1	3

### Distribution of Laboratory Products.

#### *Vaccine for the Prevention of Typhoid Fever Issued by the State Hygienic Laboratory During the Month of January, 1918.*

Number of physicians to whom vaccine was sent..... 6

• Number of complete treatments sent..... 81

#### *Ophthalmia Neonatorum Prophylactic Outfits Distributed During the Month of January, 1918.*

Number of outfits, containing two ampoules each, issued..... 826

### Public Health Instruction.

#### *Participation in Instruction in Public Health During January, 1918.*

##### Main Laboratory at Berkeley—

Bacteriological instruction outfits sent out..... 2

Bacteriological instruction outfits in use..... 22

Lectures by the Director..... 2

### BIOLOGICAL DIVISION.

CHARLES A. KOFOID, Ph.D., Sc.D., Consulting Biologist.

During the greater part of the month of January field work of the hookworm campaign among the mines of the Mother Lode was temporarily suspended and Mr. A. M. Bean, field agent, carried on experimental work in the laboratory of the Biological Division. As a result of his experiments it has been found that common salt, either dry or in solution, will kill the hookworm larvæ. It is therefore being recommended to mine superintendents that a thick layer of salt be sprinkled over the area immediately surrounding a stool which has been deposited on the floor of a mine. A series of experiments by Mr. J. D. McDonald on the effect of



temperature on the development of hookworm larvæ has shown that a temperature of 95 degrees F. is too high for the proper incubation of the eggs as it seems to affect their viability. The temperature of 85 degrees F. used for the culture of the hookworm larvæ in the laboratory of the Biological Division is more suitable for the development than the higher temperature.

*Summary of Examinations Made in the Biological Laboratory of the State Board of Health During the Month of January, 1918.*

	Positive	Negative	In-conclusive	Total
Intestinal worms— Hookworm -----	28	158	0	186

## REPORT OF THE BUREAU OF TUBERCULOSIS FOR JANUARY, 1918.

E. L. M. TATE-THOMPSON, Director.

Dedications of county institutions in California may not be as rare in the future as they have been in the past. The precedent established by the supervisors of Alameda County and the Alameda County Society for the Study and Prevention of Tuberculosis ought to be followed in every county in the state, when new buildings are opened.

Over three hundred people made the pilgrimage that day in the rain, to the formal opening of the Arroyo Sanatorium. The Livermore band entertained the guests, some of whom came from the northern counties of the state. There were speeches by the supervisors and others interested, but the prayer of Father McKinnon was echoed so deeply in the hearts of all that there was no further need for words except to again express appreciation to the supervisors and architect for what had been made possible.

Before the dedication of the sanatorium becomes history, one single fact is worthy of comment (since the director has been present at every meeting since the first day, two years ago when, the site was selected), and that is the cordial, happy relations of everybody interested. The cooperation of the supervisors, the friendly picnic lunches on the grounds while the sanatorium was in process of building; and finally, its dedication of service to those who have been so long forgotten, makes one envy Alameda County's patients, for they have indeed come into their own.

The bureau hopes it is the beginning of what was intended when the subsidy bill was drawn, that the tuberculosis work in the county may be divorced from the other institutions. Providing place good enough for any one in the county will go a long way towards diminishing tuberculosis in Alameda County.

Los Angeles, Santa Barbara and Ventura will have formed a group for a district tuberculosis hospital by early winter.

San Diego's beautiful new hospital with its pergolas and sun porches placed so that they face the sea, is nearing completion.

In January, the supervisors of Kern, Kings and Tulare counties, together with the director, spent two days in the desert and foothill country looking for a suitable site for the Tri-County Sanatorium. An ideal place in the foothills is under consideration and undoubtedly will be decided upon as the most available site.

San Bernardino is nearly ready.

Santa Barbara has decided, besides entering into the joint county plan with Los Angeles, to build a pavilion at their new county hospital for advanced cases.

So the hope that by next winter "there will be beds for all who come" may be fulfilled. Perhaps the figures of the last six months may prove our obligation.

The first draft excluded 1,314 men on account of tuberculosis.

The second draft on February 13 had excluded 120.

From all the camps in California there have been 1,471 men discharged to date.



Six hundred fifty-seven of these were California men; 814 came from other states, and we are endeavoring to return them to their homes by creating sentiment in the camps; but a total of 2,905 men in a period of six months must make us pause. What will the next six months bring, and the next?

It would touch the hearts of all California if they could have stood with me one morning not long ago at the Base Hospital at Camp Kearny. Sixty-seven men were about to be discharged on account of tuberculosis. Most of these men had been in the hospital on account of measles.

Asking the soldiers to seat themselves in the Y. M. C. A. building in groups by states, before I talked to them, I began to hope that perhaps the line-up for California would be smaller, but it was not. California, Colorado, New Mexico and Arizona sat in groups. It is a good deal easier to talk to any audience about tuberculosis than it is to be confronted with sixty-seven fine young chaps who have it. I said, "Where would you fellows rather be just now than any place else?" They knew they were to be discharged that day, and suddenly before I realized it, sixty-seven husky and whispering voices said, "Home." And by the time we had all wiped the tears from our eyes, we recovered together and I told them what California could do, what Colorado had to offer, and of the Red Cross efforts in all the states and of the great necessity to get home *first* and then *second* to secure treatment.

But my audience was not confined to the inside. A zealous orderly, who mothers the men in the hospital, decided if I went to the window I could talk to another group in quarantine. So we began all over again and when I called their counties and states and told them where they might go, such a cheerful grin, came over the face of one of them that I said, "Where do you come from?" He said he knew that Alameda County would look out for him, and I envied him.

But our deluge of appeals for care is only beginning. Daily into the southern part of the state, men whose hearts are filled with bitterness, come in from Eastern camps, only to find out that light work for very sick men of draft age is not easy to obtain. By winter every available space will be used up and the days of settling down to the hard fight will be upon us.

The "Grizzlies" and the boys from the Navy, with the aid of seven regimental bands, brought in \$1,000 in quarters not long ago as the result of the ball game for the convalescent camp which will soon be open.

Educational talks, moving pictures and an exhibit have been arranged for the men at Camp Kearny.

Every man in the state has been looked after in one way or another, but the fight against the Invisible Enemy is just beginning. We need to double and treble every local activity.

The Director addressed the Kern County Nurses' Association and also spoke at the annual meeting of the Visiting Nurses' Association at Santa Barbara.

#### Hospitals Visited.

Sacramento  
Arroyo Sanatorium

San Joaquin  
La Vina  
San Diego

Convalescent Camp  
Los Angeles  
Santa Barbara

### REPORT OF THE BUREAU OF VENEREAL DISEASES FOR JANUARY, 1918.

H. G. IRVINE, M.D., Director.

The State Board of Health of Minnesota requested and obtained a month's leave of absence for Dr. H. G. Irvine, Director of this Bureau of Venereal Diseases, in order that he might establish a similar department for Minnesota. Dr. Irvine left California January 14 and at the request of the Surgeon General's office, attended conferences in Washington, D. C., before taking up his duties as Director of the Minnesota Bureau of Venereal Diseases in Minneapolis.

#### Work in Los Angeles.

In Los Angeles an appropriation of \$25,000 was made to cover the cost of the renovation of the inebriate home, its equipment and maintenance as a venereal disease hospital as well as the equipment of a night clinic in the city. The formal



opening of the new hospital, the Los Feliz, took place January 29. It is equipped to care for 51 patients, women who are venereally diseased or who have formed drug or liquor habits. The treatment of these patients will be in charge of Dr. Harriet Probasco, whose excellent work in the Juvenile Hospital has proved her ability to care for this type of cases. A matron, nurses and police guards complete the staff. An excellent social service plan has been devised by Miss Lynne, Social Service Director of the bureau, whereby the women who enter Los Feliz may not only be treated medically, but also may have mental examinations to determine their fitness to support themselves honorably. The women are to have the opportunity of receiving vocational advice from Miss Isabel Bethune, who will endeavor to determine actual or latent skill and to enable the social service worker to intelligently place these women in positions where they may gain a livelihood. The civil and health authorities are cooperating in every way to carry out the program for the suppression of prostitution and the treatment of venereal disease. A survey of the county jail made by Dr. O. V. Schroeter showed that of 151 men, 34 had gonorrhœa, 28 had positive Wassermanns and 15 refused the Wassermann test. Of the 11 women who were sentenced for felonies, who could not enter the Los Feliz Hospital 2 had gonorrhœa, 9 had positive Wassermanns, and 1 had no report of the Wassermann.

#### **The San Diego Program.**

In San Diego the county appropriated \$10,000 to build and equip an isolation hospital for venereal diseases, which will be open about February 15. Noon conferences are held in San Diego every two weeks and are attended by the local and county health officers, Major Decker, the sanitary inspector of Camp Kearny, the chief of police, police judges, the district attorney, the head of the military police and the local members of the California Military Welfare Association.

Dr. Martha Whelpton has been appointed under the San Diego Board of Health to make all examinations and carry on the treatment of all women placed in the care of the health department. The county health department is making arrangements to open a department of its clinic for the treatment of venereal disease.

A few months ago San Diego passed what is known as a fornication ordinance, which makes a single act of illicit intercourse a crime with a penalty up to \$300 fine and 150 days in jail.

#### **Fresno Establishes Clinic.**

In Fresno infectious cases are treated at the county hospital, and Dr. Morgan, the superintendent, is now aided by an excellent nurse, Miss Ida McCune, who will endeavor to follow up the cases, instruct them and keep them returning for treatment. The city of Fresno has appropriated \$3,000 for the equipment and maintenance of a clinic and the services of a nurse and bacteriologist.

#### **Stockton Starts Work.**

Mayor A. C. Oullahan called a meeting of the city trustees, county supervisors, district attorney, chief of police and the city and county physician for the purpose of discussing Stockton's part in the campaign against venereal disease. Dr. Watters of the bureau and Dr. Nauus, district health officer, attended and outlined the policies of the State Board of Health with regard to the treatment of venereal disease and the suppression of prostitution. The formation of a clinic for the treatment of these diseases will be taken up formally at the next meeting of the trustees. The county hospital, an excellent institution, already receives and treats infectious cases.

Habeas corpus proceedings were brought against the health department of Oakland and quietly settled without dispute; the patient in question was quite willing to be treated by the health department. Recent cooperation between the city and county authorities is allowing the work to proceed more rapidly now.

#### **Survey in San Jose.**

A survey in San Jose of the women known to practice prostitution was made and 12 were isolated in the county hospital for the treatment of syphilis or gonorrhœa. The health department was much disturbed by a writ of habeas corpus brought against the superintendent of the county hospital; this case is not yet settled. It was postponed. Consultation with Dr. Sawyer and the members of the Bureau of Venereal Diseases was held with the city officials on this case.



### Jail Surveys in San Francisco.

A conference was held by Judge Sullivan on January 4 to discuss the thousand-dollar bail. This had been required of the women who were held on charges relating to prostitution in order to assure their appearances before the representative of the city board of health for examination, and it was found that it played directly into the hands of the bail bond brokers, instead of keeping the women in jail awaiting examination. A plan proposed by Dr. Hassler was adopted and has since been carried out—that all women are to be looked up in the physicians' record which is accessible at all times, and if they have not been examined they are to be held in a special quarter of the jail until the physician has made his report. If, however, they have previously been examined, they will be allowed to leave on their own recognizance, to return for a hearing in the court room. The repressive measures as they are being carried out have resulted in a much smaller number of vagrants being brought before the court.

Active measures for the treatment of venereal diseases in the jail has been begun by Dr. Hassler. A Wassermann survey of each jail is being completed and those infected are treated; \$14,000 was asked by the Board of Health to equip and maintain a clinic for venereal diseases in connection with the San Francisco Hospital; this sum has not yet been granted, but the matter is still before the supervisors.

On January 11 the members of the California Military Welfare Commission, members of the Committee for the Prevention of Venereal Diseases, members of the staff of the Bureau of Venereal Diseases, representatives of the Army and Navy, police judges of San Francisco, the chief of police and the district attorney met in conference. The purpose of this meeting was to obtain a general survey of what has been done for the protection of the men in the Army and Navy and to prevent certain features which have arisen in the work. The need of adequate facilities for the permanent custodial care of the feeble-minded prostitutes was emphasized and the establishment of an industrial farm colony for the vocational training of these women was discussed. A campaign for funds to equip such a colony is being planned.

### Educational Work.

As part of the educational work, the bureau is aiding Lieutenant Eliot of the Commission on Training Camp Activities in obtaining lecturers who will address the men at the camps. Dr. William Ophuls, Dean of Stanford University Medical School, gave six venereal disease lectures to the officers and men at Camp Kearny on January 20 and 21. Placards on venereal diseases for the latrines of the camps will soon be ready for distribution. New pamphlets for the guidance of mothers in teaching their children sex hygiene are to be printed by the bureau in answer to the numerous requests for such information.

### Newly Accredited Hospitals.

In the absence of the director of the bureau it has been thought best to extend the period of temporary accrediting of the hospitals and clinics to June 1, 1918, until further investigation may be made and a permanent list of those regularly approved may be had. The following have been added to our list of approved clinics: Los Angeles County Hospital, Santa Barbara Cottage Hospital, Fresno County Hospital, and Children's Hospital, San Francisco.

### *Report on Distribution of Salvarsan During January, 1918.*

Number of doses of arseno-benzol sent to health officers and approved dispensaries:

County Hospital, Stanislaus County	3
San Francisco County Jail	65
Nevada County Health Officer	17
Shasta County Health Officer	3
Cottage Hospital, Santa Barbara	6
Fresno County Hospital	6
Kings County Hospital	2
University of California Clinic	10
San Jose Health Department	25
Health Officer, Tulare County	3
Los Angeles County Hospital	25
Children's Hospital, San Francisco	3
San Francisco Hospital	50
San Diego County Hospital	25
San Francisco Board of Health	5



## Treatment reports received:

96 patients received one dose	96
19 patients received two doses	38
9 patients received three doses	27
3 patients received four doses	12
	173

127

Prostitutes	32
Other occupations	52
No occupations	43
	127
Males	40
Females	87
	127

## Patients treated:

San Francisco Health Department	79
Stanford University Clinic	20
San Diego County Hospital	10
Sacramento County Hospital	8
Fresno County Hospital	6
Tulare County Hospital	1
San Mateo County	1
Stanislaus County Health Department	1
Santa Barbara Cottage Hospital	1
	127

Total number of arseno-benzol ampoules distributed	768
Total number of treatment cards received	461
Total number of treatment cards distributed and not returned	307
	768 768

## REPORT OF THE BUREAU OF VITAL STATISTICS.

GEORGE D. LESLIE, Director.

## Widows Attract Bachelors More Than Widowers Do Spinsters.

Statistics for 1917 show the greatest excess yet recorded for weddings of bachelors with widows over those of spinsters with widowers. In California last year 4,842 bachelors married widows or divorcees, while only 2,822 spinsters married men of prior matrimonial experience, the excess for the former being 2,020, or 71.6 per cent. In 1916 the figures were 3,989 for bachelors marrying widows against only 2,518 for spinsters marrying widowers, the excess being 1,471, or 58.4 per cent. The proportionate excess was much less in the previous decade, with successive per cents ranging as follows: 33.7 (1906), 33.2, 41.9, 31.9, 36.9, 45.7, 43.4, 46.1, 50.0, and 48.2 (1915). The excess was only one-third in 1906 and 1907 and about one-half in 1914 and 1915, but rose to three-fifths in 1916, and even seven-tenths in 1917.

Hardly any exceptions appear to the general rule that there are more unions between bachelors and widows or divorcees than between spinsters and widowers or divorced men. Among 58 counties there were exceptions for only 7 in 1906, 10 in 1907, 9 each in 1908, 1909 and 1911, 7 again in 1910, 6 each in 1912 and 1913, 8 in 1914, and 3 each in 1915, 1916 and 1917. The three counties showing slight exceptions in 1917 were Colusa, Del Norte and Glenn.

## Births, Deaths and Marriages for December.\*

*State, Totals and Annual Rates.* The following table shows for California as a whole, the birth, death and marriage totals for the current month and the year to date in comparison with corresponding figures for last year, as well as the annual rates per 1,000 population represented by the totals for the current month and the year to date. The rates are based on an estimated midyear population of 3,037,968 for California in 1917, the estimate having been made by the United States Census Bureau method with slight modifications.

\*NOTE.—The present report is for the month preceding but two. This order must be followed because of the publication of the Bulletin during the early part of the month, before the tabulation of records for the next preceding month is completed.



*Birth, Death and Marriage Totals, with Annual Rate per 1,000 Population for Current Month and Year to Date, for California: December.*

Month or period	Total		Annual rate per 1,000 population, 1917
	1917	1916	
December—			
Births -----	5,163	4,453	20.0
Deaths -----	4,005	4,316	15.5
Marriages -----	3,866	3,124	14.9
January to December—			
Births -----	51,741	50,047	17.0
Deaths -----	42,027	39,775	13.8
Marriages -----	36,283	30,996	11.9

The above figures show an increase of 709 births for December, 1917, over December, 1916, a decrease of 311 deaths, and an increase of 742 marriages.

The year 1917 shows an increase over 1916 of 694 births, 2,452 deaths, and 5,287 marriages.

The death total for December includes 131 certificates, or 3.3 per cent of the monthly total for deaths, which occurred in the preceding month or earlier.

*Length of Residence.* The length of residence in California for the 4,005 decedents in December was as follows: 262, or 6.5 per cent; 1 to 9 years, 731, or 18.3 per cent; 10 years and over, 1,803, or 45.0 per cent; life, 1,037, or 25.9 per cent, and unknown, 172, or 4.3 per cent.

For residents of the 70 cities of 2,500 population in 1910, there were 90 births, and 193 deaths, which occurred in registration districts other than the city of residence.

*County Marriage Totals.* The counties showing the highest marriage totals for the month were as follows: Los Angeles, 795; San Francisco, 728; Alameda, 365; San Diego, 279; Sacramento, 156; Santa Clara, 120; Orange, 115; Fresno, 114; San Joaquin, 106; San Bernardino, 89; Riverside, 62; Marin, 61; San Mateo, 58; Sonoma, 55; Monterey, 45; Kern, 44, and Tulare, 43. The aggregate for San Francisco and other bay counties was 1,238, against 910 for Los Angeles and Orange counties together.

*County Birth and Death Totals.* Exclusive of stillbirths in both cases, the birth and death totals for the month were as follows for the leading counties, arranged in decreasing order of birth registration:

County	Births	Deaths	County	Births	Deaths
Los Angeles -----	1,159	1,047	Orange -----	112	72
Alameda -----	*781	332	San Joaquin -----	107	120
San Francisco -----	696	631	Tulare -----	102	52
Fresno -----	209	142	Santa Barbara -----	100	44
Santa Clara -----	163	150	Contra Costa -----	91	46
Sacramento -----	150	142	Kern -----	88	39
San Diego -----	150	170	Imperial -----	82	39
San Bernardino -----	114	108	Stanislaus -----	66	42

\*Includes nearly 300 returns for whole year obtained from baptismal records.



*City Birth and Death Totals.* Birth and death totals, exclusive of stillbirths, are presented similarly for the principal California cities below:

City	Births	Deaths	City	Births	Deaths
Los Angeles -----	715	680	Pasadena -----	57	45
San Francisco -----	696	631	Stockton -----	56	69
Oakland* -----	633	188	Bakersfield -----	43	18
Sacramento -----	110	128	Santa Barbara -----	43	29
San Diego -----	106	108	Long Beach -----	40	43
Fresno -----	74	51	Eureka -----	32	25
Berkeley -----	68	50	Alameda -----	31	27
San Jose -----	61	47	Richmond -----	29	9

\*Includes nearly 300 returns for whole year obtained from baptismal records.

*Causes of Death.* The following table shows the classification of deaths in California for the current month, in comparison with the preceding month:

*Deaths from Certain Principal Causes, with Proportion per 1,000 Total Deaths for Current and Preceding Month for California: December.*

Cause of death	Deaths, December	Proportion per 1,000	
		December	November
All causes -----	4,005	-----	1,000.0
Typhoid fever -----	13	3.2	6.7
Malarial fever -----	6	1.5	1.2
Smallpox -----	-----	-----	0.3
Measles -----	14	3.5	-----
Scarlet fever -----	4	1.0	1.2
Whooping-cough -----	10	2.5	2.6
Diphtheria -----	22	5.5	5.2
Influenza -----	36	9.0	6.4
Other epidemic diseases -----	12	3.0	2.9
Tuberculosis of lungs -----	451	112.6	95.4
Tuberculosis of other organs -----	46	11.5	21.2
Cancer -----	284	70.9	74.2
Other general diseases -----	199	49.7	39.3
Meningitis -----	35	8.7	5.8
Other diseases of nervous system -----	368	91.9	94.5
Diseases of circulatory system -----	607	151.6	148.3
Pneumonia and broncho-pneumonia -----	514	128.3	113.7
Other diseases of respiratory system -----	109	27.2	26.8
Diarrhea and enteritis, under 2 years -----	66	16.5	21.5
Diarrhea and enteritis, 2 years and over -----	24	6.0	8.7
Other diseases of digestive system -----	233	58.2	66.0
Bright's disease and nephritis -----	302	75.4	82.0
Childbirth -----	35	8.7	7.9
Diseases of early infancy -----	146	36.5	42.2
Suicide -----	63	15.7	18.9
Other violence -----	288	71.9	74.2
All other causes -----	118	29.5	32.9

In December there were 623 deaths, or 15.5 per cent of all, from diseases of the respiratory system (including 514 deaths from pneumonia and bronchopneumonia); 607, or 15.2 per cent, from diseases of the circulatory system; and 496, or 12.3 per cent, from the various forms of tuberculosis. Diseases of the respiratory system caused more deaths in December than heart disease.

Other notable causes of deaths for the month were as follows: Diseases of the nervous system, 403; diseases from violence (suicide, accidents, etc.), 351; diseases from the digestive system, 323; Bright's disease and nephritis, 302; cancer, 284; and epidemic diseases, 117.



The deaths from the four leading epidemic diseases reported for the month were distributed by counties as follows:

Influenza		Diphtheria		Measles	
Alameda	1	Alameda	2	Imperial	2
El Dorado	1	Imperial	2	Kings	1
Fresno	1	Los Angeles	10	San Diego	11
Imperial	2	Mendocino	1		
Los Angeles	11	Riverside	1		14
Merced	1	San Diego	2		
Monterey	1	San Francisco	2		
Placer	1	San Luis Obispo	1	Typhoid fever	
Sacramento	4	Tulare	1	Alameda	1
San Bernardino	2			Fresno	2
Santa Clara	1			Los Angeles	2
Shasta	1			Nevada	1
Solano	1			Sacramento	3
Sonoma	1			San Francisco	2
Stanislaus	1			San Joaquin	1
Tehama	2			Santa Clara	1
Tulare	2				13
Tuolumne	2				
	26				

*Sex, Race and Nativity.* The proportion of the sexes among the 4,005 decedents in December was: Male, 2,434, or 60.8 per cent of all; and female, 1,571, or 39.2 per cent.

The race distribution of decedents was: White, 3,783, or 94.5 per cent; Japanese, 77; Chinese, 65; Negro, 53; and Indian, 27.

The 3,783 white decedents were classified by nativity as follows: California, 902, or 23.9 per cent; other states, 1,589, or 42.0 per cent; foreign countries, 1,192, or 31.5 per cent; and unknown, 100, or 2.6 per cent.

*Infant Mortality.* There were 339 deaths for children under 1 year which were distributed by age in months as follows: Under 1 month, 160, or 47.2 per cent; 1 to 2 months, 63, or 18.6 per cent; 3 to 5 months, 63, or 18.6 per cent, and 6 to 11 months, 53, or 15.6 per cent.

In certain cities and counties the deaths under 1 year were as follows: Los Angeles, 49; rest of Los Angeles County, 32; San Francisco, 44; Oakland, 15; rest of Alameda County, 9.

The 339 deaths under 1 year, in comparison with the 5,162 live births reported for the month, represent an infant mortality ratio of 66 per 1,000 births.

## REPORT OF THE BUREAU OF SANITARY ENGINEERING FOR JANUARY, 1918.

By C. G. GILLESPIE, C.E., Director.

### Plumbers Registration.

On January 28 directions were sent to the appointees of the various county examining boards for plumbers to proceed to organize their boards and to see that the plumbers in their jurisdiction apply for examination on or before March 15, 1918, on penalty of prosecution if plumbing work is performed after that date without a temporary permit.

### Swimming Pool Regulations.

On January 14 the bureau and the University of California made arrangements with the Berkeley Y. M. C. A. for a joint investigation and study of the sanitation of its swimming pool as a basis of swimming pool regulations which the State Board of Health will adopt when the study is concluded. Among other things, the following studies will be made: (1) determine the period of use of the water in the pool to maintain, without treatment, (a) a clear body of water, (b) a low bacterial count, (c) absence of scum and sediment; (2) determine the period of use of the water with treatment of the pool each night with bleaching powder solution to maintain conditions (a), (b) and (c); (3) determine the period of use of the water with filtration, using coagulant, to maintain conditions



(a), (b) and (c); (4) determine the period of use of the water with filtration, coagulation and chlorination in a circulating system for maintaining conditions (a), (b) and (c). Other studies suggested in the course of the investigation may also be undertaken, including a possible study of predominant species of the bacterial flora present under the various conditions of manipulation of the water supply.

#### Sanitary Inspections in Sierra Foothills.

A beginning was made in the sanitary inspection of the Mother Lode District with a view to stimulating sewerage and allied sanitary improvement. Everywhere these communities are awakening to the need of modern sanitation. Sewerage is being discussed and planned in Jackson, Groveland, Jamestown, Portola and other places with an earnestness which must soon come to a realization of the local desires.

#### SEWAGE DISPOSAL.

Applications for Permit Filed—None.

Permits Granted—None.

Plans Filed.

*Santa Barbara.* Amended plans of Riensch-Wurl screen project.

*Los Gatos, Oaks Sanitarium.* Design of septic tank, dosing tank and sub-surface distribution system.

#### Investigations, Inspections, Reports and Conferences.

*Los Gatos, Oaks Sanitarium.* January 11. Inspection for purpose of recommending a scheme of sewage disposal to include sewers serving all buildings, a septic tank and subsurface irrigation.

*Livermore, Alameda County Tuberculosis Hospital.* January 19. Inspection of Imhoff tank and sprinkling filter installation recently completed.

*Turlock.* January 20. Inspection of sewer farm. The city is compelled to make improvements in disposal on account of complaints against nuisance, the farm being surrounded by habitations. It was recommended that the first measures include furrowing or checking up the sewer farm, piping sewage for distribution instead of ditching and constant shifting of the sewage from place to place, followed by cultivation of the soil when dry. Possible crops allowed to be grown include barley, wheat and the grains, sugar beets, fodder corn and fodder crops, dry beans and fruit trees. Cantaloupes, heretofore watered with sewage, were condemned.

*Sanger.* January 21. The city is obliged to improve its sewage disposal on account of a \$10,000 damage suit now pending. The present disposal is into a slough in the bottom lands of the Kings River. The proposed improvement will include an outfall pipe distributor and a twenty-acre sewer farm in the bottom lands, planted to raisin grapes and alfalfa. Bonds are to be voted on. The bureau endorsed the project.

*Kingsburg.* January 21. Conference held with the city's engineer on plans for Imhoff tank and sprinkler filter, to be located near the Kings River with outlet onto a sand bar. The improvement is necessitated by complaints against the existing sewer farm.

*Merced Falls, Yosemite Lumber Company.* Inspection of sewage chlorinator shows that it is not being operated consistently and that pollution of Merced River is increased fully tenfold at this time of year in passage by Merced Falls.

*Groveland.* January 22 and 23. This community, supply depot on the Hetch Hetchy Water Supply System, is considering the formation of a Sanitary District for the purpose of obtaining sewerage. The proposition was discussed and agitated with local citizens.

*Jamestown.* January 23. The community desires a more comprehensive sanitary service, including sewers, garbage and refuse disposal, control of communicable diseases, etc. The proposition was discussed with local citizens.



*Manteca.* January 24. Investigation of a report that the community is adopting disposal of sewage into wells in lieu of the adoption of a comprehensive sewer system. Fully a dozen wells have been put down already. The danger of contamination of the best wells in the community was pointed out and those who could adopt other safer modes of disposal directed to do so. Those who can not were directed to apply for permit to this board to continue the disposal, as the law requires.

*Redondo.* January 18. Sewage is collected in a settling tank in town and every night pumped to a farm about two miles east, where it is used for irrigation. Ten acres of sandy soil is so used. No nuisance has been complained of. The land and sewage are apparently well handled but certain crops have been raised that will not be permitted hereafter.

*Miramar Beach.* January 22. Complaint has been made of faulty sewage disposal at Miramar Resort. Inspection revealed that the sewage is passed successively through five septic tanks and the final effluent discharged into the ocean. No nuisance or objectionable conditions prevailed at this time and there is reason to believe the complaints were not well founded.

*Santa Maria.* January 23. Recent efforts to reduce scum formation on the Imhoff tank have been quite successful. This has been accomplished by more frequent removal of sludge and by frequently breaking the scum. There seems to be no cause for complaint. By changing the effluent from time to time to different furrows on the sewer farm, successful disposal is accomplished.

*San Luis Obispo.* January 24. Reinspection of sewer farm. It is planned to soon thoroughly pipe the farm for distributing the sewage and thus eliminate flumes and ditches that are difficult to maintain and to keep clean. Some leveling of the farm also is necessary to make satisfactory application of the water possible. Neighboring farmers have recently complained that objectionable odors emanate from the sewer farm at times. With the improvements planned, it is hoped to overcome these objections.

*Lompoc.* January 25. The sewer system has now been in operation about one year and is being used by practically 85 per cent of population. The Imhoff tank is inoffensive and gives a clear effluent. It receives frequent and intelligent attention. The effluent disposal into Santa Ynez River has been objected to as it discharges at a point where pooling around a tule growth results. This can be overcome by extending the outlet or digging a ditch to the channel.

*Benicia.* January 29. An inspection was made of certain unsewered sections of the city in connection with complaints on sewage-littered premises. It was found that in many places the sewage was flowing from houses directly out on the top of the ground, causing offensive odors and endangering the health of the community. Cesspools are a failure. The remedy for these conditions is a comprehensive sewerage system for the whole city. The district attorney is now prosecuting, where the conditions are most flagrant.

*St. Helena.* January 30. A reinspection was made of the St. Helena sewage disposal. The effluent of the Castner tanks is supposed to be disposed of on the city's sewer farm. At the time of the inspection the effluent was very turbid and was flowing directly into the Napa River.

*Yountville, Veterans' Home.* January 30. An inspection was made of the sewage disposal plant at this home. The sewage flows through two sets of septic tanks, thence either to contact beds or directly onto fields for irrigation. At times the effluent from the tanks is allowed to flow along a ditch near the county road and finally finds its way to the Napa River. At such time there is considerable odor, about which many complaints have been made. At the time of the inspection the effluent from the septic tanks was being run onto a ploughed field. There was no odor and the sewage soon disappeared into the ground. The septic tanks are badly in need of cleaning.

*Eldridge, Sonoma State Home.* January 30. A reinspection was made of the sewage disposal plant. Sewage flows through septic tanks and is chlorinated before flowing into Sonoma Creek. Samples were taken of the chlorinated sewage and the creek above and below the sewer outfall. According to analyses, the chlorination is poorly handled and the creek below the outfall is far from safe. Only about 12 pounds available chlorine per million gallons was actually used. A dose of 70 pounds was recommended.



**WATER SUPPLIES.****Applications for Permit Filed.**

*Thermal, M. E. Alderman.* To continue to supply water to the inhabitants of Thermal, from a 940-foot artesian well.

*Laguna Cliffs, Laguna Cliffs Water Company.* To supply water to residents of Laguna Cliffs from wells in Laguna Canyon.

**Permits Granted.**

*Banning, Banning Water Company.* To supply water to the inhabitants of Banning from San Gorgonio River and wells.

**Plans Filed.**

*Folsom, Folsom Prison.* Plans of proposed testing laboratory.

**Investigations, Inspections, Reports and Conferences.**

*Sonora, Sierra and San Francisco Power Company.* January 23 and 24. Preliminary investigation with a view to advising on a filtration project. The supply is a ditch supply and is said to be subject to excessive silt and turbidity during periods of rainfall.

*National City.* January 1. Inspection of supply of Sweetwater Water Company. Chlorine treatment was found to have been temporarily discontinued. Analysis collected at time of visit showed satisfactory quality.

*Camp Kearny.* January 2. Samples were collected to test the efficiency of the camp chlorination. Water of satisfactory quality is being supplied.

*Oceanside.* January 3. Inspection of the chlorinating apparatus and sampling to determine its efficiency. Records indicate that the treatment is being continuously applied. The supply is derived from deep tubular wells in the San Luis Rey River bed and is subject to but slight contamination.

*San Luis Obispo.* January 24. The old chlorinator was recently replaced with a rebuilt machine of the Electro Bleach make. The new apparatus has given no trouble and a continuous dose of 2 to 3 pounds of chlorine per million gallons is being applied. Water in the small reservoir at the pumping plant is being temporarily treated with chlorine because of the presence of a typhoid case near the plant. This appears to be unnecessary.

*Arroyo Grande.* January 24. The creek supply is not now being used but only water from the drilled wells. The water company plans on drilling additional wells so that the creek need not be again resorted to.

*Lompoc.* January 25. Reinspection of supply. Analyses have frequently shown the water to be dangerously contaminated and chlorination has been recommended.

*Santa Paula.* January 26. Inability to obtain chlorine is given by the water company as an excuse for a recent lapse of several weeks in treatment of the supply. The gas has now been obtained and immediate resumption of treatment is promised.

*Redondo, Quandt Supply.* January 18. This is a well supply serving about six families two miles east of Redondo. Inspected on account of a complaint from one of the users. Cleaning and more thorough covering of reservoir were recommended.

*Glendale.* January 29. Reinspection of Verdugo Canyon water supply. Quality of this supply is being seriously endangered by persons living in canyon, who claim a right to divert the water through ornamental ditches across their lots. Litigation in regard to the matter is pending.

*Alameda, Berkeley, Oakland, East Bay Water Company.* January 3, 8, 16 and 17. Samples were taken of the various sources of the East Bay Water Company, in connection with an application for domestic water supply permit, now pending.

*Alameda, Berkeley and Oakland.* January 22 and 23. A twenty-four-hour test was run on the chlorinator used by the East Bay Water Company at the San Leandro filter plant, in order to determine the effect of temperature variation



on the chlorine feed. It was found that a difference of twenty degrees in temperature caused the dose of chlorine to vary one ounce per hour when the initial dose was twelve and one-half ounces per hour.

*Alameda, Berkeley and Oakland.* January 22 and 23. A twenty-four-hour test was made on the chlorinator at Lake Temescal to determine its sensitiveness under temperature variations. On starting up the machine and leaving it at a desired setting before equilibrium is reached was observed to cause as much as a 60 per cent variation in the meter setting. The average variation in the meter setting after equilibrium is reached amounted to 7.9 per cent in 21 hours and was accompanied by a change in temperature varying from 44° F. to 56° F.

*Healdsburg.* January 24. A second test was run on the chlorine apparatus of the Healdsburg waterworks. This supply is obtained from dug wells near the banks of the Russian River. This water is chlorinated, due to danger of contamination by seepage from the river. The apparatus is indoors, subject to good operation, and is working satisfactorily.

*Santa Rosa: Macdonald Water Company.* January 25. Conference was held, with view to desirable change in point of chlorination. The supply is derived from a creek subject to excessive contamination and is delivered raw to a large reservoir prior to distribution or direct to town. The reservoir has a "shallow" and a "deep" water outlet, both leading to the main distributor. The chlorinator is installed at a point on the by-pass where only that water derived direct from the creek or from the "shallow" water outlet can be treated. In periods of heavy draft a considerable portion of the supply comes from the deep water outlet and is not chlorinated. It was recommended that the chlorinator be moved to treat the creek water above the delivery point to the reservoir.

*Santa Rosa.* January 25. An inspection was made of the new well being drilled by the municipal water works. This 10-inch well is about 930 feet deep and flows at the rate of approximately half a million gallons a day. The water is warm. A bacterial analysis shows it to be of excellent quality.

*Benicia, Benicia Water Company.* January 29. The chlorinator of this company was found to be out of commission. This was due to delay caused by waiting for new parts to replace defective ones.

*St. Helena, St. Helena Water Company.* January 30. The chlorinator of this company was found to be out of commission. The chlorine solution is fed under pressure into the outlet pipe from the reservoir. When first installed this connection consisted of a rubber hose. This finally disintegrated and recently a wooden pipe with a gutta percha coupling was used. This gutta percha coupling could not withstand the pressure and burst. At the present time the company is waiting for a new connection.

*Petaluma, Petaluma Power and Water Co.* January 31. A second test was run on the chlorinator at Adobe Creek. The test extended over twenty-four hours. The machine maintained a uniform feed although the temperature varied twenty-two degrees during the test.

## SWIMMING POOLS.

### Applications for Permit Filed.

Agua Caliente, Agua Caliente Springs.

Alameda, Sunny Cove Baths.

Applegate, Walmond Resort.

Del Mar, San Diego County, Los Banos Baths.

Descanso, Ellis Ranch Baths.

Fort Bidwell, Martin Baths.

Los Angeles, Board of Education (to operate Macy Street and Hollywood High School Baths).

Napa Soda Springs, Fiege Bros.

Olympia, Our Ranch Baths.

Pacific Grove, Pacific Grove Beach Company.

San Diego, Board of Playground Commissioners.

San Francisco, Center Club Baths.

San Francisco, Sutro Baths.

Seigler Springs, Seigler Hot Springs.

Selma, Selma Municipal Baths.

Vallejo, Blue Rock Springs Baths.



**Temporary Permits Granted.**

Pending investigation, temporary permits have been granted to operate the above-named pools. Also, a permit was granted to the Olympic Baths, Inc., Stockton, to construct an outside pool.

**Plans Filed.**

*Stockton, Olympic Baths, Inc.* Floor plan of present and proposed tank.

**LABORATORY WORK.****Berkeley Office.**

Bacteriological examinations of water—332.  
Chemical examinations of water (partial)—335.  
Bacteriological examination of sewage—1.

**Los Angeles Office.**

Bacteriological examinations of water—70.  
Chemical examinations of water (partial)—10.  
Bacteriological examinations of sewage—8.

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**REPORT OF THE BUREAU OF FOODS AND DRUGS FOR  
JANUARY, 1918.**

E. J. LEA, M.S., Director.

The laboratory received, during the month of January, two hundred and sixteen samples of foods, drugs and miscellaneous materials.

The official food and drug samples collected by the inspectors of this bureau consisted of beverages, butter, cake, candy, cheese, chocolate, coffee, condiments, cream, eggs, egg substitutes, extracts, fish, fruit, gelatine, ice cream, jelly, liquors, meat, milk, molasses, noodles, oleomargarine, oyster cocktail, peanut butter, spice syrups, and vegetables; camphorated oil, dandruff cure, fluid extract cascara, headache tablets, tincture iodine, paregoric, sweet spirits of nitre and tonics.

The unofficial samples included candy, caviar, cheese, condiments, egg substitute, gelatine, liquors, marlade, milk, olives, sardines, vegetables, walnut meats and water.

Samples received from the state institutions for analysis were baking powder, butter, cinnamon, chocolate, coffee, coffee substitute, cream of tartar substitute, extracts, fish meal, flour, frankfurters, mustard, syrup, vinegar, ammonia and liquid soap.

**CASES REFERRED TO DISTRICT ATTORNEYS.**

At the January meeting of the State Board of Health one hundred and ten violations of the California Pure Foods and Drugs Acts were referred to district attorneys for prosecution. These cases included canned tomatoes and tomato products made from moldy and decomposed material; stale, decomposed or rotten eggs sold as fresh; cream adulterated with milk; artificially flavored and colored cane sugar sold as maple; extracts highly diluted and deficient in strength; strawberry preserves made largely from apple stock; fig paste (for fig bars) made from moldy, decomposed, cull figs; dried fruit, decomposed, wormy and unfit for food; soda fountain syrups artificially flavored and colored in imitation of genuine products; milk diluted with water and deficient in cream; crab meat, decomposed and unfit for use; spices consisting of decomposed material; imitation vinegar sold as cider vinegar; prepared mustard, decomposed and colored with turmeric to conceal inferiority; ice cream deficient in butter fat; coffee containing cereals and chicory; chicken cayenne pepper adulterated with more than 50 per cent cereal; oyster cocktails made from tainted oysters and bad catsup; many inferior and cheap liquors sold from bottles bearing the original labels of high-grade manufacturers; and several drugs, some of which were below the required standard of strength and others bore false and fraudulent claims on the labels.



The dealers and manufacturers referred were as follows: Orchard City Cannery, Campbell; R. A. Puffer, Glendale; Auto Grill, Hayward; Pacific Vinegar & Pickle Works, Hayward; Blacnomore Chemical Company, Albert Cohn, Bee Hive Confectionery, California Bakers Specialty Co., Moses Brothers, K. Setsuda & Company, Food Supply Company, Scolinos & Valands, Blue Ribbon Winery, Jos. Melczer & Company, California Liquor Company, Waldorf Cafe Saloon, Montana Bar, Mecca Bar, Lion Bar, Capitol Bar, Belasco Bar, Los Angeles; American Creamery Company, Perry & Lima, B. D. Campbell & Son, Oakland Candy Kitchen, Midway Restaurant, Oakland; Turner's Cafe, Pittsburg; Eagle Cafe, Colonial Hotel, Richmond; Perkins & Company, Calmento Specialty Co., Capital Candy & Cracker Co., Sacramento; Moran & Company, Press Barber Shop, Grand Eastern Market, Isadore Weinstein, Caesar's Grill, H. Wreden & Company, Reed Pickle Works, Italian-American Canning Company, New City Hall Cafe and Lii Lum, San Francisco; San Diego Relish Company, Edward C. Tinsley, Robertson's Pharmacy, Goodwill Saloon, Golden Lion Tavern & Grill, Palace Bar, M. and M. Bar, Telephone Bar, People's Bar, Pony Bar, Lobby Bar, Stockholm Bar, Tivoli Saloon, Imperial Bar, Bristol Bar, Metropole Bar, Golden Anchor Bar, Old Mission Bar, Stag Bar, San Diego; Giusto Maggiora, Gerome Tripoli, F. G. Wool Packing Co., Cuneo & Sanfilippo, Greco Canning Co., Aiello Bros. & Company, Bisceglia Bros. Canning Co., G. Malatesta, San Jose; Gladstone Liquor House, San Mateo; Anthony Greco, Santa Clara; N. Mangold, Royal Tamale Parlor, J. E. Campbell, J. Knutte, Olympia Fish Market, S. F. Rose, T. V. Collins, Vallejo.

### CONVICTIONS REPORTED DURING JANUARY.

There were 49 convictions obtained for violation of the foods and drugs act, \$310 in fines being imposed; probation was given in 15 cases. The following were found to be adulterated:

\*\*Absinthe, Hanley Bros., Santa Cruz, fined \$10; \*absinthe, Sarmento & Machado, Santa Cruz, fined \$10; absinthe, P. V. Fitzpatrick, Santa Cruz, fined \$10; absinthe, George Vincent, Martinez, fined \$15.

The following were found to be adulterated and mislabeled:

Amer Picon, O. J. Branchini, San Francisco, fined \$25; pink beans, Gentry's Market, Oakland, fined \$5; white beans, Gentry's Market, Oakland, fined \$5; brandy, R. W. Levy, The Mart, Vallejo, guilty; brandy, C. F. Weeber, San Francisco, guilty; cognac brandy, Theo. Gier Wine Co., Oakland, fined \$10; peach brandy, Theo. Gier Wine Co., Oakland, fined \$5; catsup, Imperial Restaurant, Oakland, fined \$10; catsup, W. G. Salter, San Francisco, fined \$5; chocolate, S. Rosenthal, Oakland, fined \$10; cognac, John D. Wilking, San Francisco, guilty; blackberry cordial, M. Isaacs, San Francisco, fined \$5; Eau de Quinine, Pacific Barbers' Supply & Cutlery Co., San Francisco, guilty; eggs, Armour & Co., Inc., Oakland, fined \$5; strawberry extract, D. Basili, San Francisco, guilty; Fernet-Branca, Peter Aiello, Pittsburg, fined \$15; candy figs, Collins-McCarthy Co., San Francisco, guilty; frankfurters, Alhambra Meat Market, San Francisco, guilty; frankfurters, Isidore Garfinkle, San Francisco, guilty; gin, J. F. Mora, Pittsburg, fined \$15; gin, Turner's Cafe, Pittsburg, guilty; gin, D. E. Anglum, San Francisco, fined \$25; gin, M. P. Bennett, Vallejo, fined \$5; gin, Murphy & Laws, Niles, fined \$5; grape juice, R. W. Levy, The Mart, Vallejo, guilty; vanilla ice cream, H. Barker, Key Route Inn, Oakland, fined \$5; Kummel, German, John D. Wilking, San Francisco, guilty; fresh milk, Lee De Force, Hollister, fined \$5; egg noodles, B. Winther, San Francisco, fined \$5; egg noodles, Republic Noodle Factory, San Francisco, fined \$15; black pepper, D. M. Bell, Alhambra Restaurant, Martinez, fined \$5; Poultry red pepper, Columbia Coffee & Spice Co., San Francisco, guilty; poultry red pepper, Smith-Robertson Co., San Francisco, guilty; poultry red pepper, Berquest Bros., Oakland, fined \$5; \*sardines, J. L. Cramer, Watsonville, fined \$25; sausage, Newman, Korn & Co., Oakland, fined \$5; sausage, Bright & Miller, Oakland, fined \$5; sausage, frankfurter, W. R. Harper, Rockridge Market, Oakland, fined \$5; maple syrup, Siebrecht Bakery, San Francisco, fined \$5; syrup, wild cherry bark, U. S. P. Ordway's Pharmacy, Monterey, guilty, bail forfeited; vermouth, Turner's Cafe, Pittsburg, fined \$15; \*walnut meats, M. A. Katz, San Francisco, guilty; whiskey, J. F. Mora, Pittsburg, guilty; whiskey, Pacific Buchu Gin Co., San Francisco, fined \$10; whiskey, Theo. Gier Wine Co., Oakland, fined \$5.

### ARTICLES OF FOOD CONDEMNED.

The following articles of food, condemned upon physical and chemical examination as unfit for food, were either destroyed or denatured, during the month of January, 1918: Gelatine, 16½ pounds, unfit for food, San Diego; herring, 215 pounds, decomposed, Los Angeles; milk, evaporated, 11 pounds, decomposed, Palo Alto; nitre, sweet spirits of, 5 pints, below standard, Pittsburg; relish, 2 pounds, decomposed, Watson-

\*\*Referred on 2 counts.

\*Referred on 3 counts.



ville; sardines, 15 pounds, decomposed, Watsonville; sardines, 252 pounds, decomposed, Palo Alto; tomatoes, 2,140 pounds, decomposed, Los Angeles; tomato ketchup, 482 pounds, decomposed, Los Angeles; tomato puree, 9,469 pounds, decomposed, Los Angeles; walnut meats, 20 pounds, wormy and filthy, Vallejo; walnut meats, 500 pounds, rancid and wormy, Oakland.

*Articles of Food in Cold Storage January 1, 1918.*

Beer -----	10,531 gals.	Raisins -----	31,538 lbs.
Butter -----	604,838 lbs.	Strawberries -----	49,680 lbs.
Cereals -----	225 lbs.	Horseradish -----	113,450 lbs.
Cheese -----	3,373,817 lbs.	Kraut -----	* 1 bbl.
Cider -----	50 bbls.	Lard -----	327,838 lbs.
Citron -----	600 lbs.	Lard substitute -----	1,125 lbs.
Compound -----	769 lbs.	Meats, miscellaneous -----	3,474,581 lbs.
Eggs -----	516,015 doz.	Ham and bacon -----	850 lbs.
Eggs, canned -----	1,240 lbs.	Whalemeat -----	29,999 lbs.
Eggs, frozen -----	79,079 lbs.	Mincemeat -----	5,810 lbs.
Egg Meats -----	271,776 lbs.	Nuts -----	48,725 lbs.
Fish -----	1,517,066 lbs.	Peanut oil -----	386 lbs.
Fruit-----		Pop corn -----	510 lbs.
Apples -----	30,228,018 lbs.	Poultry -----	929,130 lbs.
Apricots -----	632 lbs.	Syrup -----	306 bbls.
Berries -----	6,642 lbs.	Sweetbreads -----	405 lbs.
Cocoanut -----	6,760 lbs.	Vegetables-----	
Cranberries -----	17,600 lbs.	Artichokes -----	165 lbs.
Currants -----	190 lbs.	Beans -----	5,480 lbs.
Dates -----	3,318 lbs.	Beets -----	70 lbs.
Dried Fruit -----	63,394 lbs.	Cabbage -----	4,724 lbs.
Figs -----	1,740 lbs.	Carrots -----	695 lbs.
Grapes -----	184,798 lbs.	Cauliflower -----	770 lbs.
Miscellaneous fruits --	11,773,923 lbs.	Celery -----	29,650 lbs.
Oranges and lemons----	8,378 lbs.	Lettuce -----	936 lbs.
Peaches -----	11,880 lbs.	Mushrooms -----	16,800 lbs.
Pears -----	243,356 lbs.	Potatoes, white -----	1,716,544 lbs.
Persimmons -----	2,160 lbs.	Potatoes, sweet -----	13,200 lbs.
Plums -----	124 lbs.	Tomatoes -----	4,820 lbs.
Quinces -----	639 lbs.		

## REPORT OF BUREAU OF REGISTRATION OF NURSES FOR JANUARY, 1918.

ANNA C. JAMMÉ, R.N., Director.

Inspection of schools of nursing in the southern part of the state was made by the director during the month of January. Schools were visited in San Diego, Santa Ana, Orange, Riverside, San Bernardino, Redlands, Upland, Pomona, Pasadena, Los Angeles, Santa Barbara and San Luis Obispo.

In connection with this work visits were made to high schools in the localities where the schools of nursing are located. The purpose of this was to discuss with the principals the prenursing requirements for admission to the schools of nursing which becomes effective after September 1, 1918, and to inspect the courses given by the high school to students now enrolled in the training schools.

It is exceedingly gratifying to see the interest shown by the principals in establishing the courses for the students in training and in bringing the vocational aspect of nursing to the attention of the high school girls. The subjects preparatory to nursing have now taken their place on the schedule of high school courses. During these visits to the high schools the director was asked to give assembly talks. Out of the twelve schools visited talks were given in eight.

### A New School of Nursing.

There appears to be a tendency to increase the number of schools of nursing and where this can be done under proper conditions as to hospital service in the teaching facilities, and living conditions for the students, it is to be recommended.

The county of San Bernardino has completed its new hospital which takes the name of San Bernardino General Hospital. This is a beautiful building architecturally and beautifully located close to the San Bernardino Mountains. The general equipment of the hospital is entirely new and modern in every detail, from the operating room to the power plant, and every facility is offered for the care of one hundred patients. The school of nursing started one year ago in the



old hospital and has followed the prescribed course of instruction which will now be carried on in more favorable surroundings in the new building, which will give the students opportunity for instruction in medical, surgical and obstetrical nursing services, also the care of children and tubercular male patients. This adds one more to our list of good county hospitals and to a list of seven schools connected with these hospitals.

By action of the board, February 2, this school was placed on the accredited list for one year.

The following schools were also continued on the accredited list for one year by resolution of the board, February 2:

- Alameda Sanatorium, Alameda.
- Burnett Sanitarium, Fresno.
- County Hospital, San Diego.
- Hahnemann Hospital, San Francisco.
- Mary Jess Hospital, Santa Rosa.
- Mater Misericordiæ Hospital, Sacramento.
- Mercy Hospital, Bakersfield.
- San Antonio Hospital, Upland.
- St. Francis Hospital, Santa Barbara.

The St. Joseph's Hospital School for Nurses, Stockton, on the deferred list for one year has now met the requirements of the board and is accredited for one year from February 2, 1918.



## List of Diseases Reportable by Law

Anthrax	Ophthalmia Neonatorum
Beri-beri	Paratyphoid Fever
Cerebrospinal Meningitis (Epidemic)	Pellagra
Chickenpox	Plague
Cholera, Asiatic	Pneumonia (Lobar)
Dengue	Poliomyelitis
Diphtheria	Rabies
Dysentery	Rocky Mountain Spotted (or Tick) Fever
Erysipelas	Scarlet Fever
German Measles	Smallpox
Glanders	*Syphilis
*Gonococcus Infection	Tetanus
Hookworm	Trachoma
Leprosy	Tuberculosis
Malaria	Typhoid Fever
Measles	Typhus Fever
Mumps	Whooping-cough
	Yellow Fever

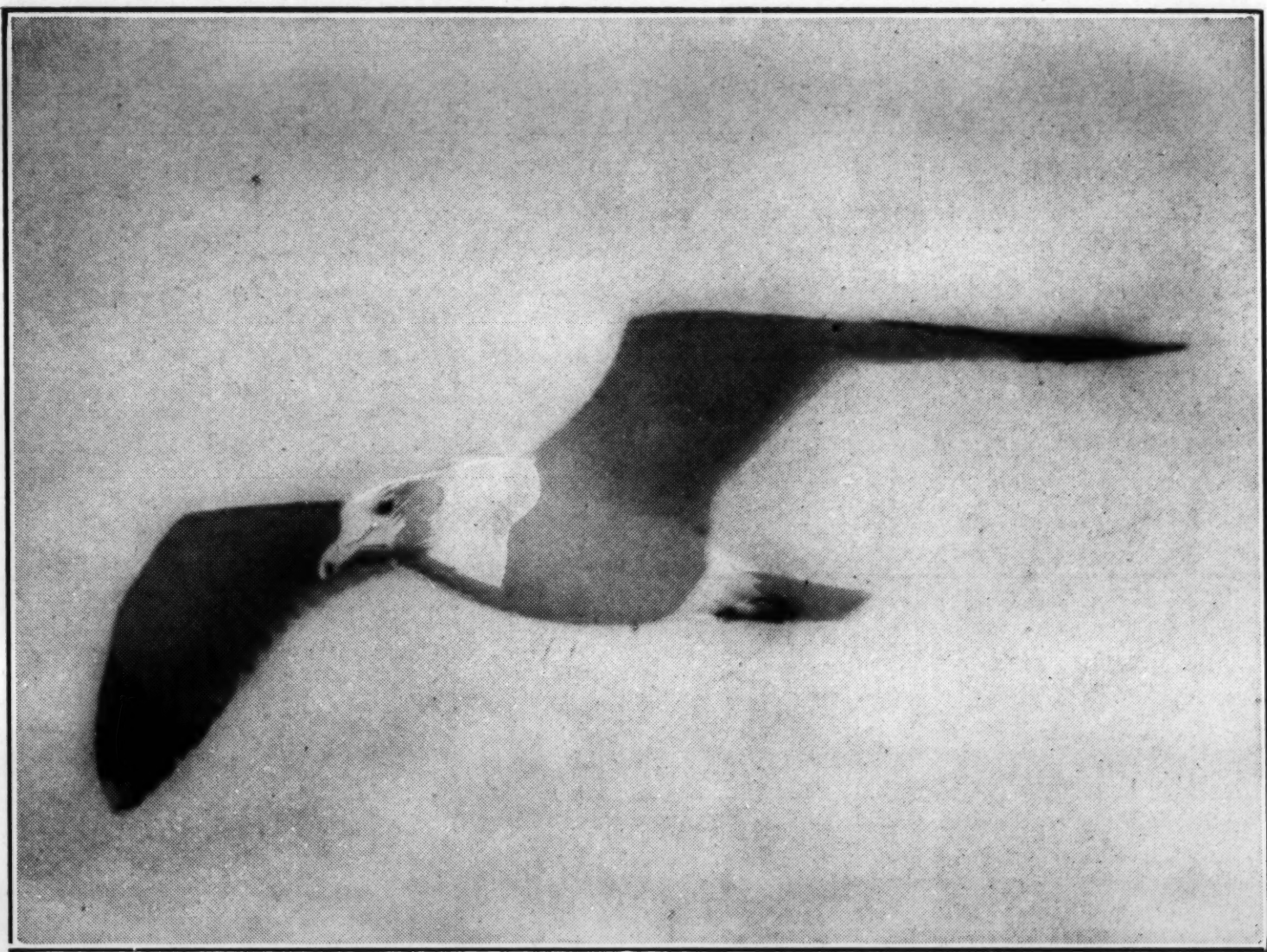
\*Reported by office number. Name and address not required.

## Quarantinable Diseases

Cerebrospinal Meningitis (Epidemic)	Poliomyelitis
Cholera, Asiatic	Scarlet Fever
Diphtheria	Smallpox
Leprosy	Typhus Fever
Plague	Yellow Fever

Section 16, Public Health Act. All physicians, nurses, clergymen, attendants, owners, proprietors, managers, employees, and persons living in or visiting any sick person in any hotel, lodging house, house, building, office, structure, or other place where any person shall be ill of any infectious, contagious, or communicable disease, shall promptly report such fact to the county, city and county, city, or other local health board or health officer, together with the name of the person, if known, and place where such person is confined, and nature of the disease, if known.





The California gull is of great economic importance to the state. The movement to use the eggs of these birds for human consumption should be discouraged, as such procedure might result in the extermination of these remarkable scavengers.